Nitú, Colombia:

A Geographical Analysis of an Isolated Border Town

by

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To the family

Thelma, Mike, Pat and Tom

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Abstract of Dissertation Presented to the
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MITÚ, COLOMBIA:
A GEOGRAPHICAL ANALYSIS OF AN ISOLATED BORDER TOWN

By

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The goal of this study is to describe and analyze, from a geographical point of view, the development and potential resources of Mitú, Colombia.

The initial section is a description of the physical setting of the town including climate, landforms, soils, and vegetation. This is followed by a brief historical treatment of the development of the area and a review of some of the pertinent literature dealing with it.

The major portion of the study is a description of the various aspects of the town. The most important economic elements in the town are government salaries, the collection of wild rubber, and agriculture. The price of rubber has not kept pace with the inflationary increases in the cost of trade goods and interest in rubber is declining rapidly. Agricultural development is limited

by the size of the local market and the high cost of transportation to other markets. For these reasons the role of government spending is becoming more and more important.

The amount spent there by the federal government is far in excess of the amount collected locally. This subsidization of the local economy is justified by the importance of Mitú as an outpost of the Colombian government. The capital of the comisaria was moved to Mitú from further inland to help secure the land against any incursions by Brazilians. The goal has been achieved, but the flow of federal money must continue to maintain the town.

The lack of any land communications to other parts of Colombia has stifled much growth of the town. Even river transportation is hazardous due to many rapids and waterfalls. Air transportation is not difficult as several small airlines fly in from Villavicencio almost daily, but the higher costs of air transportation restrict the movement of all but the very expensive products.

While there is an ample supply of land in more accessible areas of Colombia there can be no great expansion of agriculture in the Mitú area. Unless some new natural resource is discovered it will remain dependent on federal spending as its major source of income.

CHAPTER I

INTRODUCTION

Even the name of Mitú is intriguing. (It is the Indian name of a bird). When seen the town becomes even more interesting. It stretches for almost a mile along the right bank of the Vaupés River in southeast Colombia, about 70 miles north of the equator. After flying over virtually unbroken rainforest vegetation for an hour, the town provides a welcome change in the scenery. The most outstanding feature from the air is the large (3,400 foot) landing strip which parallels the river just east of town.

On the ground one is struck by the permanence and size of the many buildings constructed of concrete blocks. Other noteworthy features were the raised watertower and the system of street lights that were more obvious than the streets they were intended to light. What justification could there be for such a town, so isolated from the rest of Colombia that all transportation in or out was by air? Thus began the field work which resulted in this paper.

Previous library research had indicated that Mitú began as a trading town with forest products being collected largely by the Indians and exchanged in town for

manufactured goods. These products then moved through Manaus on their way to world markets.

This somewhat circuitous trade route was necessitated by the many rapids on the upper branches of the river. Before the advent of the airplane, transportation from Bogotá to Mitú was considered extremely difficult. The alternate route down the Vaupés and the Rio Negro to Manaus was not easy but offered less hazards than going up river.

As the trade in rubber grew, more Colombian products were passing through Brazil and the Brazilian influence increased. The fear of Brazilian encroachment on Colombian territory led to the transfer of the capital of the comisaria of Vaupés from Calamar to Mitú. The plan being that the government employees located there would strengthen the Colombian hold on the land.

The North American demand for rubber during World War II resulted in further growth in the town. Since the war the price of rubber has dropped but the Colombian government has continued to invest far more money in the town than is justified on the basis of taxes collected there.

These government expenditures may be justified by the role of town as "guardian of the border," or in the expectation that in the future, additional settlers from the more populated parts of the country will immigrate to the lowlands in search of land. Presently, immigration

to Mitú is going on at a much slower rate than in the more accessible areas along the northern border of the comisaría. It seems likely that the lack of easy land communications will continue to stifle the economic development of Mitú indefinitely.

Mitú currently seems larger than it should be, on the basis of local population. This is due to its long standing role as a trading center for a large portion of the northwest Amazon Basin.

The very isolation of the town has also attracted many scientists from throughout the world. It serves as the "jumping off" point for many anthropologists from various countries who are attempting to study Indian cultures before they have been altered too much by contact with modern civilization. Numerous biologists also use Mitú as a base station for their studies of plant communities.

Missionary efforts, both Protestant and Catholic, have long been carried on in the Mitú area and they have played an important role in the religious and economic development of the town and surrounding area.

The present study is an attempt to evaluate the various aspects and elements of society in the physical setting of the Amazon Basin. Mitú is not a unique town because many towns in the tropics face similar problems. However, its isolation coupled with its role as trading

center and government outpost do give it rather unique characteristics.

For many of Mitú's problems there is no apparent solution. Perhaps they cannot be solved, but the residents are not discouraged. They anticipate better things in the future.

It is hoped that learning of the problems of these people who live, almost literally, on the edge of civilization will be as meaningful for the reader as they were when observed by the author. The isolation, economic, and physical problems have simply become part of the environment which must be overcome.

CHAPTER II

PHYSICAL SETTING

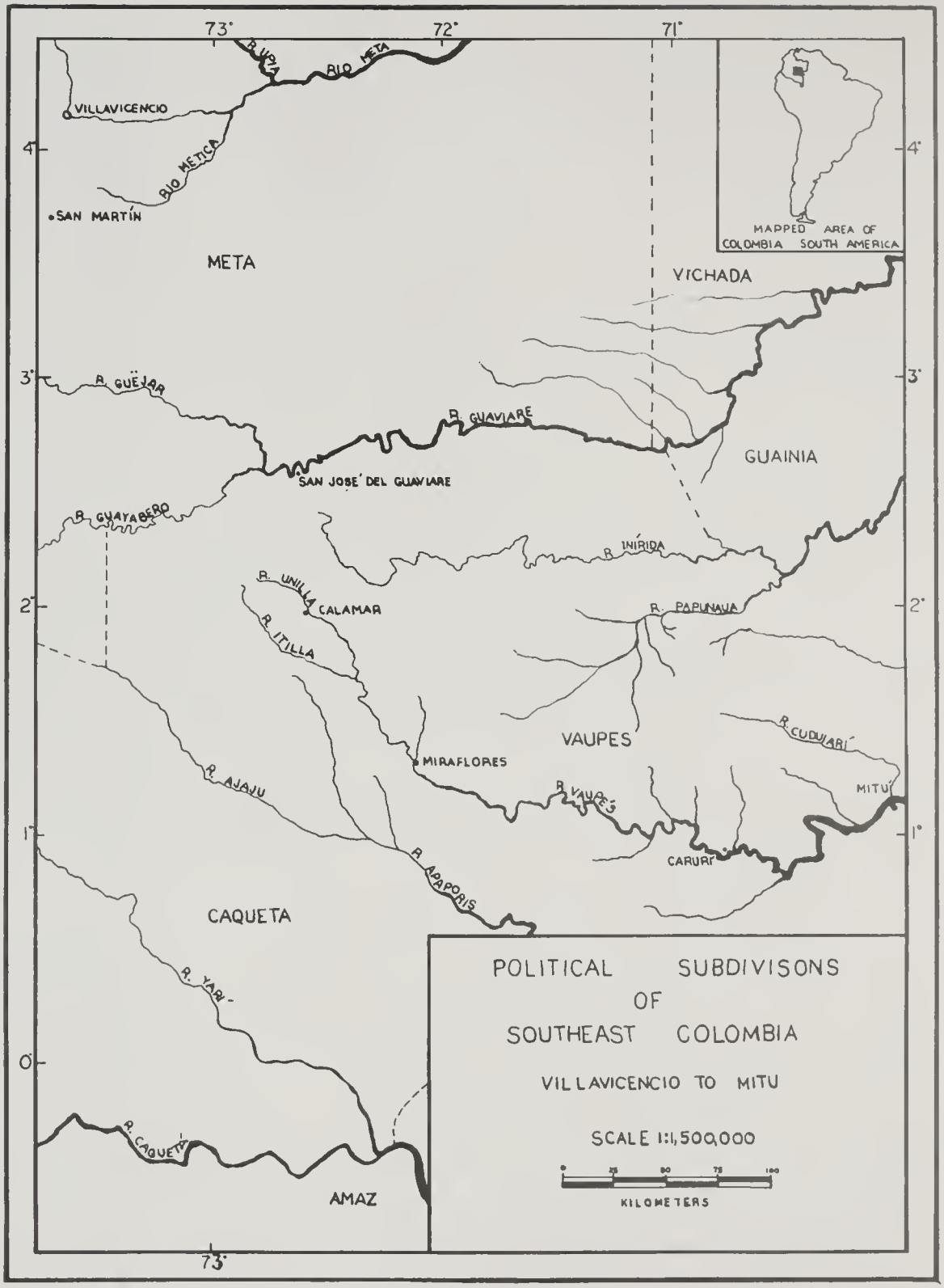
Man's impact on the Colombian Amazon has not been great. His presence is indicated by the few scattered clearings that may be seen - usually along water courses.

While it is possible to move about on the rivers, and in some cases even overland, the most logical means of traveling any distance is by air - an indication that man has not conquered the landscape. To provide a framework in which the town of Mitú may be viewed, the following sections have been included.

All of these topics have been instrumental in directing or influencing the growth and development of Mitú. The chapter begins with a consideration of climatic factors, describes the physical landscape, and concludes with a section on the Vaupés River itself. Throughout this study the role of man, and his efforts is emphasized, but they must be considered within the local environment.

Climate

Dr. Hegen has stated that very little detailed information on the climate of the Amazon Basin is now available.[1] He was referring specifically to the area south of the Vaupés,


73°
72°
71°
4°
3°
2°
1°
0°
R. UPIA
RIO META
VILLAVICENCIO
RIO METICA
SAN MARTÍN
META
MAPPED AREA OF COLOMBIA SOUTH AMERICA
VICHADA
R. GUÉJAR
R. GUAVIARE
GUAINIA
SAN JOSE DEL GUAVIARE
R. GUAYABERO
R. INÍRIDA
R. UNILLA
CALAMAR
R. ITILLA
R. PAPUNAUA
VAUPES
R. CUDUIARÍ
MIRAFLORES
R. AJAJU
R. VAUPÉS
MITÚ
CARURÚ
R. APAPORIS
CAQUETA
R. YARI
R. CAQUETÁ
AMAZ
POLITICAL SUBDIVISONS
OF
SOUTHEAST COLOMBIA
VILLAVICENCIO TO MITU
SCALE 1:1,500,000
KILOMETERS

but records for the Vaupés and southeast Colombia are certainly no better than along the Amazon proper. Although the capital of the comisaría was moved to Mitú in 1938, there was little concern with weather records; "official" records date only from 1946.[2] (The fact that the same table records data for Bogotá only from 1941, may be an indication of the past lack of concern for weather data throughout the country.)

Weather recordings are usually assumed to include temperature, precipitation, humidity, cloud cover, wind direction and velocity, and barometric pressure; most data for Amazonia, however, include only temperature and precipitation readings. For Mitú, humidity is also included, but there is no anemometer or barometer and cloud cover is not recorded.

In 1969 the radio operator at the Mitú airport began taking more or less systematic readings of temperature, precipitation and humidity. His readings of the non-recording instruments are generally made between the hours of 7 A.M. and 2 P.M., with a few being made as late as 9 P.M.

As would be expected from its location, so near the equator, there is little variation in the temperature throughout the year. The difference between the average temperature of the coldest months July and August, and the hottest month September, is only 1.1°C (24.8° vs 25.9°C).

The diurnal range is of course much greater and often exceeds 10°C. Minimum temperatures of 15.5°C and even 10°C have been reported,[4] and certainly may have occurred, but they are obviously not "average" minimum temperatures. Part of the discrepancy can be attributed to the lack of recording instruments and to reliance on visual observation during a limited part of each day. Low night temperatures have been cited as one problem in introducing agricultural crops to the area. Some extremely sensitive crops have been damaged.[5]

While the average temperature for the year is 25.3°C, the maximum reported is much higher. Again there is quite a variation in reported temperatures, according to the various sources. While the official data showed a maximum of 36°C, other sources[6] reported 40°C, and one, who traveled through the area in 1920,[7] recorded a high reading of 43.3°C. Although temperatures may reach these extremes under exceptional conditions or for short periods of time, they do not represent the "normal" highs for the area. The usual range of maximums varies generally between 30° and 33°C with highs of 37°C not uncommon.

For a visitor to the Vaupés, probably the most striking aspect of the temperature is the change, from day to night, in the sensible temperature and how cool one can be when the thermometer is still recording 23.3°. To sleep comfortably at least one light blanket, and sometimes two, were

required.

The very rapid changes in temperature also have a pronounced effect on physical comfort. A drop of over 2°C. occurred in one fifteen minute period when a rather strong wind from the south developed. On this day even many of the residents had donned jackets by 7 P.M. even though the temperature was still above 23°. On another afternoon there was a 4°C drop in temperature during a one hour period of heavy rains.

While the maximums were reached in the late afternoon (2-5:30 P.M.) the temperature at 6:30 or 7 A.M. was often within a few degrees of the high for the day. The sun rises at approximately 6 A.M. each day and, with the exception of cloudy days, the "chill" of the night soon is dispelled.

There is much more variation in levels of precipitation than in temperature. The average annual rainfall is over 3,200 mm and is so well distributed over the year that no month is truly dry, but the driest month (February) receives less than one-third that of the wettest month (June).

This rainfall regime is very important in the economic life of the Vaupés, as the seasonal tapping of the rubber trees is regulated by it. The rubber workers begin their work in the fall and stop in the spring before the rainfall becomes too heavy, in May and June.

New fields are cut and "cleared" during January and February and after being allowed to dry are burned in late February, preferably just before the rains begin again. If there is sufficient time for rather thorough drying, the fields will burn cleaner and more completely and cultivation will be much easier.

In general terms, the wetter season extends from March through November while the drier season is from December through February.[8] During the dry season river travel often becomes both difficult and dangerous as rapids appear in parts of the rivers which were previously calm and smooth.

As Dr. Hegen found in his study,[9] it is apparent that the afternoon convectional rain which has often been considered representative of tropic regions is not as common or as prevalent as it was thought to be. Based on observations made during November, February and March, (without the aid of instrumentation) rain occurs during all times of the day or night and some of the heavier rains and thunderstorms developed late at night.

The heavy rains have a very important effect on the soils in areas where the natural vegetation has been disturbed. Run-off is very rapid and erosion and compaction occur. Within five minutes of the start of heavy rains the river was turned to a muddy-brown along the bank and after a few more minutes this band of muddy water often extended fifty or one hundred yards out into the river. Never during the time of the field work was the

entire river filled with sediment but it is obvious that heavy rains do remove much of the topsoil and great care must be taken in clearing forested land and preparing it for planting to reduce erosion. Completely cleared land without cover cannot be left exposed to the heavy rains.

Rainfall is extremely heavy at times. The lack of recording instruments precludes precise data but Dr. Goldman reported seeing a dugout canoe immediately swamped when a rain storm passed over it. The Indian occupant, who was attempting to reach the shore before the storm hit, had to swim the rest of the way; only later did he recover his boat.[10] Even without rain gauges one is immediately aware of the intensity of such precipitation.

Humidity levels during each twenty-four hour day generally exceed 96%, with the maximum being recorded early in the morning. Often in the early morning a mist hangs over the Vaupés which is very similar to river fogs of the mid latitudes. This is quickly burned off by the rising sun and the heat of the day arrives early. Humidity also drops quickly and is not generally oppressive. Conditions are certainly not severe enough to curtail physical activity for the residents and both work and recreation were carried on throughout the day without regard for heat or humidity. Football (soccer) practices were at 5:30 or 6:00 A.M. but this was more an accommodation

to work schedules than an attempt to avoid heat; games were played in the afternoon.

As stated previously, there is no anemometer in the Vaupés and no records of winds are kept. During the period of the field work for this paper, there were several storms with rather high winds, but they, like most weather phenomenon there, seem to have little direct influence on the lives of the residents. On one occasion it was impossible for a plane to land because of the wet landing strip and another time a plane was delayed because of the low ceiling, but in general the people have learned to cope with the elements and accept the changes which they bring. During an extremely long or hard rainstorm, one might see boat passengers using a banana leaf as an umbrella but even this was rather rare.

The Indians who were native to the Vaupés know no other conditions and the blancos moving in accept the vagaries of the weather not with stoicism, but with cheerfulness.

Landforms

Mitú is located on the Vaupés River in the southeast part of Colombia. Virtually all of the comisaria of Vaupés lies within the Greater Amazon Basin. It is a region of relatively low relief with most of the small variations in elevation, which do occur, obscured by dense rainforest vegetation. The only breaks in the somewhat monotonous landscape are provided by isolated sandstone hills,

Fig. 2--Mitú. The town of Mitú along the right bank of the Vaupes River.

Fig. 3--Mitú. Mitú from across the river. The buildings and water tower give the appearance of a larger town.

which will be discussed later.

Geologically this region is not well known but reconnaissance studies have been made by Van Der Hammen (1952)[11] and by Moser and Tayler (1960).[12] Their reports form the basis for most of this section on landforms.

Between the Guaviare River and the Caquetá is located a slightly higher land mass, known as the Vaupés Swell, which separates the drainage of the Meta River to the north from that of the Putamayo to the south.

Because of the complete lack of evidence of folding, it appears that the entire region was uplifted in the east creating a dip to the west.[13]

The sedimentary deposits formed sandstones and conglomerates, with the sandstones frequently displaying stratification. From these it was determined that the prevalent direction of the rivers depositing them was toward the northwest, indicating that during the period of deposition, the Andean syncline was receiving materials from the area of the Guianas.[14]

Along the Apaporis (south of Mitú) are some small hills 150- 200 feet high composed of eroded material from the ancient sandstones. Because of their homogeneity, it is difficult to determine the direction of their origin, but in some places it is clearly from the east.[15] Much of this westward erosion took place during the Tertiary period when there were apparently two separate instances

of uplift in the east.[16]

With the rise of the Andes during the Quaternary, the rivers reversed themselves and began flowing toward the Atlantic. As they cut their way through the sandstones, many rapids and falls were created. It is these geologically "recent" remnants caused by differential erosion which cause the disruption of water transportation today.

Hoser describes the formation similarly:

> It is probable that the Vaupés Swell formed a rising land mass from Mid-Cretaceous until early Tertiary time, but sank during the Oligocene when marine influences were felt. By the Miocene, the sea had retreated and small freshwater basins resulted from minor undulations which preceded a final uplift of the Swell at the end of the Tertiary. The Piraparaná and Apaporis pass over the southern flank of the Swell, the base of which consists of precambrian igneous rocks.
>
> Overlying the igneous basement is the basal conglomerate of the Lindosa Formation and the unconformable contact is clearly seen at Cachivera Elvira on the Apaporis. This formation, whose probable equivalent in Guiana, the Roraima, has a total thickness of some 2400 metres, nowhere exceeds 300-400 metres in the area of the Vaupés, and this supports the theory that the Swell formed a rising shelf during the time of major deposition. No fossils have been found in the Lindosa, and estimates of its age have ranged from Paleozoic to Cretaceous. However, recent potassium-argon and rubidium-strontium age measurements on dolerites which intrude the Roraima Formation in British Guiana show that the Roraima must be at least 2,085 million years old and therefore pre-Cambrian."[17]

This interpretation is supported by writings of an earlier geologic party in which it is theorized that

drainage from the Amazon Basin was to the Pacific Ocean prior to the uplift of the Andes. As the Andes were forced higher, the basin became an inland sea until the combination of the rising mountains and basin filling forced rivers to flow east thereby forming the present drainage pattern.[18] Hamilton Rice also believed that the Amazon Basin was uplifted following previous volcanic action.[19] Moser's map of the Mitú area indicates a "Basement Complex" composed of Pre-Cambrian igneous and metamorphic rocks.[20]

This is overlain with rather thin deposits of clays, sands, and gravels laid down during the Quaternary period; the cycle of erosion still continues. Deposits of clay are being laid down on the inside of the rivers' meanders while erosion of the older formations continues on the outer margins.

As mentioned above, the only variations apparent in the rather flat topography of the Vaupés are provided by the isolated "islands" that have resisted the erosion which lowered the land surrounding them. Because of the general low relief, these mountains (the commonly used name, in spite of their low elevation) have become important landmarks and reference points for both Indians and whites.[21] They extend across this portion of the Amazon Basin in a broad arc with a general northeast-southwest trend. They are not high, usually rising some 600-900 feet above the rest of the land.[22]

Fig. 4--Forest Clearing. From the air both old and new clearings are very obvious.

Fig. 5--Cerro de Mitú. The isolated hill south of Mitú stands out on the horizon.

The mountains of the western part of the comisaria are large, flat, mesa-like formations of stratified sandstone rock, formed under water and then uplifted. In the eastern part of the Vaupés the mountains appear to be of a different origin. They are smaller, cone-shaped rather than flat, and are composed of a very hard granite of the Cambrian period.[23] The sandstone mountains of the west are usually covered with rather dense, stunted, xerophytic vegetation while on the igneous ones of the east the only vegetation is in the crevices where moisture collects.[24]

After their investigations on the Apaporis, Koser and Tayler speculated that these mountains "may well be horsts, the result of vertical block faulting at the end of the Tertiary."[25] However, the consensus of scientific opinion is that they are the erosional remnants of a vast range that has been peneplained, whose dark, mist-shrouded forms are a part of the oral folklore as well as the social and religious legends of the Indian population. The distinctive plant communities they support are the delight of botanists.

The changing landforms and the varying drainage patterns they produced have been instrumental in developing the soils and vegetative communities there. Their most important work has been in the alteration of lines of drainage and the disruption of river transportation.

Soils

The soils of the Mitú area are very similar to those of the entire Amazon Basin. They are formed from alluvium transported primarily from the Andes. Having been subjected to the heavy rains and the high temperatures of an equatorial location, they exhibit most of the characteristics typical of latosols. (Oxisols in the recent 7th Approximation Series.[26]) They are not inherently fertile soils but in their "undisturbed state" do support a rather impressive growth of native vegetation. As Bates has said, the problems encountered with tropical soils are not due either to the soils themselves or the climatic regime, but to the systems of use which have been imposed on them.[27]

In the immediate area of Mitú, the Vaupés River is flowing between natural levees high enough to contain it except in times of extremely high water. (There are no reports of flooding or course changes during this century.) Consequently the soils are not being renewed and plants are dependent on the nutrients in the vegetative cycle plus what can be derived from the granitic rocks which in some places are near the surface and are being subjected to the soil building processes.[28]

For the comisaria as a whole, the soils of the western portion are somewhat better drained, sandy lateritos while those in the east are more impermeable with a greater percentage of clays.[29]

The evaluation of the soil's potential varies somewhat but most investigators have not been enthusiastic about their future as the basis of commercial agriculture.[30]

Scientists who have examined the soils of this region concluded that they were suitable for grazing operations but not for intensive agriculture. An American geologist has been quoted as saying that "clearing the vegetation and working the land with a tractor and plow would produce only a desert, a brick baked in the sun."[31] Under cultivation the good structure of the Amazonian soils tends to break down completely, possibly due to the small percentage of alkalis and alkaline earths.[32]

The few isolated scientific studies of the soil properties indicate that it is extremely acidic and lacks humus due to the very rapid decomposition of falling vegetative materials.[33]

Gonzalez - Villamizar, present Comisario of Vaupés, has cited one study of soils along the Río Guaviare in the San José area which found the soils there entirely suitable for agriculture. Among the suggested crops were corn, sugar cane, rice, cotton, coffee and cacao.

He also mentions that some settlers along the old road from San José to Calamar are successful in their agricultural efforts but lack markets to stimulate production.[34]

The only "scientific" survey of the soils and agricultural resources of the entire Vaupés was carried out by Jelisembiar Galindo, an agronomical engineer, who traversed the comisaria in 1935. The result of his work was an extremely detailed (considering the scale of 1:1,000,000) map with symbols used to indicate land uses.[35] At that time, the only "commercial" activity was collecting from native trees and thus the value of the map for the evaluation of agriculture is virtually negated. The map does serve however, as a means of locating where the Indian and white settlements were at a time when little was known of Amazonia.

Overall the soils are poor, derived from clays, sands, conglomerates, and rocks of igneous origin. The minerals having been leached out by the abundant tropical rains have left soils, where there are any at all, of a highly acidic nature. Only a few restricted areas of recent alluvium, suitable for the cultivation of modern commercial crops, have been found along the main streams.

Man has from the beginning of his incumbency in this area practiced an economy based on gathering, hunting, and fishing. The arrival of the Spanish and Portuguese merely meant continued emphasis on gathering those forest products valuable enough to reach the world market. A discussion of man against this historical and physical background will be made in the chapters to follow.

Vegetation

The vegetative patterns of the Vaupés are very similar to those of most of the Amazon Basin; the outstanding characteristic is the great variety of species. In 1858 Robert Spruce estimated that some 50,000 to 80,000 species of plants were yet to be discovered and classified in the Amazon forests. This estimate was based on the fact that as he traveled one degree of latitude or longitude approximately one-half of the species were new.[36] Although plant discovery and identification has been a powerful lure in bringing men to the Amazon, their work is far from complete. Of the approximately 15,000 Colombian specimens on file in the herbarium of the Instituto de Ciencias Naturales in Bogotá, only 8,820 had been identified and classified.[37] The most prolific contributor to this collection has been Richard E. Schultes (Harvard University Botanical Museum) with 3,700, but several others have collected more than a hundred.[38]

Many of these plants are valuable for their wood or for scientific processing to provide drugs, insecticides, or chemicals but their value is lessened by the great mixing of species which often prevents economic harvesting.

The Indians have the best knowledge of the resources of the forests. When a missionary needed a ridgepole for his house, an Indian took him by canoe to a place where the desired type tree was growing. When it was decided

that this tree was too small, the Indian got back in the canoe, paddled a mile, and then lead the missionary to a larger tree of the same variety.

Because land transportation is so difficult, the only trees that can be cut for processing into lumber are those growing very near the rivers or caños. In the past enough of these trees were taken to warrant a small sawmill in Mitú operated by the comisaria as well as another at the internado run by the Catholic missionaries. The sawmill in Mitú had been out of operation for several years due to mechanical problems with the engine powering it but in the Spring of 1970 the entire mill was being renovated with the aim of reopening it. Logs for both mills are floated down river and the sawn lumber is then transported by boat to building sites.

In the Lower Vaupés the natural vegetation is rather dense with several stories. The larger trees are 90 feet or more in height but often only three or four per acre, with intervening space being filled by smaller trees with very few vacant areas.[39] In the immediate vicinity of Mitú most of this original vegetative cover has been replaced by rastrojo after clearing and farming, but an occasional "giant" is seen to illustrate what was once the dominant plant cover.

Among the economically valuable plants are varieties of Coumarouna, a source of perfume used in the soap and

tobacco industries, Phytelephas macrocarpa a source of vegetable ivory, Aniba roseodara, from which rosewood oil is extracted, and many palms which yield oils, waxes, and fibers. From the roots of various species of Lonchocarpus, rotenone is extracted and used as a poison for many cold blooded animals and insects.

The Indians make very good use of the available plant resources. Besides their utilization as food, building materials, transportation (as dugout canoes), and in making baskets, many are valued for their chemical properties. Some hallucinogens are used in religious ceremonies, while other plants supply them with fish poisons, poisons for hunting arrows, contraceptive drugs, and even aphrodisiacs.

Many of these plants are now being analyzed and tested by chemists in other countries to determine possible applications of their properties in modern societies.

Any consideration of plant resources must also take note of the many species of Hevea which were responsible for the initial development of the Vaupés. More will be written on this in a later section dealing with rubber specifically.

The one characteristic in which the Vaupés varies from most regions of tropic rainforest is the "highlands" around the headwaters of rivers, notably the Cuduiarí and the Cubiyú. This area, known as Yapoboda, is a stony upland with sandstone outcrops. While levels of rainfall

are high during most of the year, due to soil conditions and rapid run-off, the vegetation is xerophytic with palms predominant.[40] One native plant of this area which deserves mention is a very primitive, xerophytic form of a rubber tree (Hevea nitida, variety toxicodendroides) which was probably an early part of the evolutionary chain in the development of modern, productive heveas which are now found in the wet lowlands.[41]

The vegetative cover is the most prominent feature of the landscape, the object of much of the economic activity and the greatest resource of the Vaupés. It remains for modern man to determine the best and most complete use of this resource, and progress is being made.

Role of The Río Vaupés

Although the means - and problems - of transportation will be considered in some detail in a later section of this paper, it seems appropriate to make some mention at this time of the vital role played by Río Vaupés in the life of this area.

Due to the combination of landforms, vegetation, and river drainage patterns, land travel is virtually impossible through much of the area. There is an intermittent road of sorts as far as the old capital of Calamar, on the Río Unilla, and it is - or was - possible to continue overland as far as Miraflores. From this point on all travel is by water on down the Vaupés. The only other

Fig. 6--Tito's Boat. Boats not in use soon sink, often requiring hours of baling before they are serviceable.

Fig. 7--Passing though Rapids. Even a small dugout must be "walked through" the rapids at the <u>interrnio</u> when the river is low.

road in the eastern Vaupés is a portion of the road which was to have connected Mitú with the mission village of Montfort on the Río Papurí. About sixteen KM of this road was built during the regime of Rojas Pinilla and it is sometimes referred to as "Rojas Road".

By far the most common form of travel in the comisaria is by water, primarily on the Vaupés or its tributaries. The only significant land travel which does occur is over the ancient Indian trails which connect the various river drainage areas. As soon as the next river is reached, travel continues by water.

It was the large numbers of Indians living along the river which led to the establishment of the first mission station on the Vaupés at Cararu in 1852.[42] During the 1880's a mission was set up at Mitú.[43] The Indian cultural and "economic" life was closely tied to river transportation then and remains so today.

The stimulus for the present development came with the rubber and balata "boom" of the early twentieth century and the movement of commerce downriver to Manaus. At the same time, of course, trade goods moved upriver from Manaus in exchange for these forest products.

During World War II, the United States Rubber Development Corporation came in and exported badly needed rubber to the United States by way of Bogotá. The river, plus the concentration of potential Indian labor, was a major

factor in the selection of Mitú as a collection point. Catalina flying boats were landed on a broad, relatively straight section of the river and the rubber was then flown out to Bogotá. Indeed until the early 1960's, when the landing strip was enlarged, Avianca (the major Colombian Airline) continued to send Catalinas on this route and used the river as a strip.

The dominance of the river and its tributaries over travel and housing is indicated by the fact that the survey team completing the latest (1964) census of the comisaria relied almost solely on water transportation with only an occasional overland trip to a settlement not on the river.[44]

Perhaps even more indicative of the importance of the river is that it is used in spite of all the difficulties of water travel. The number of dangerous rapids and water falls which must be portaged varies with the season, but at no time is the river completely safe for travel. During all seasons it is necessary to unload boats to pass them safely up or down the rapids. With the rapid run-off which occurs, the conditions change almost daily.

At Santa Marta rapids on the Cuduiarí on one occasion it was necessary to "walk the dug out through". Two days later, after a rain, the boat passed easily over the area without trouble, but only two days later the water again dropped to the level that passage was impossible without

Fig. 8--Large Boat in the Rapids. Tito's large boat is pulled through the rapids at Santa Marta after removing the outboard motor.

Fig. 9--Santa Marta Rapids. The rapids disappeared a few days later when the river rose and it was possible to pass easily over the same area of the Cuduiarí River.

unloading. If there was any easy or logical alternative to such problems neither Indian or blanco would put up with such inconveniences. The rivers are the best, and virtually the only, means of travel.

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CHAPTER III

HISTORICAL REVIEW AND RELATED LITERATURE

It is impossible to write a geographical study of this type without including pertinent historical information in each of the individual sections. It is appropriate however to include in this brief segment some of the more important events from the past and mention some of the literature which pertains either to the Vaupés itself or to the whole of the Amazon Basin but with application in the Vaupés.

Only a few years after the discovery of the New World, the Spanish had completed cursory explorations of much of the immense land area. Their primary interest in these explorations was the discovery of sources of wealth, with a secondary goal being the christianizing of the Indians. Whether these journeys were inspired by earthly or heavenly motivations, the result was that during the sixteenth century, towns were founded and attempts were made to assess the material and human resources of both North and South America.

The first European visitors to Amazonia were those who traveled with Orellana on his voyage down the Amazon from the Andes to the Atlantic Ocean in 1541. Included in his

party was Friar Gaspar de Carvajal who later published his account of the trip.

Following this group in 1559 was another Catholic priest, Raphael Ferrer, who traveled on the Caqueta and Apaporis Rivers. His principal interest was in locating possible converts to Christianity but he also observed the vegetative cover and reported seeing wild cacao, manioc, and several wax and oil palms.[1]

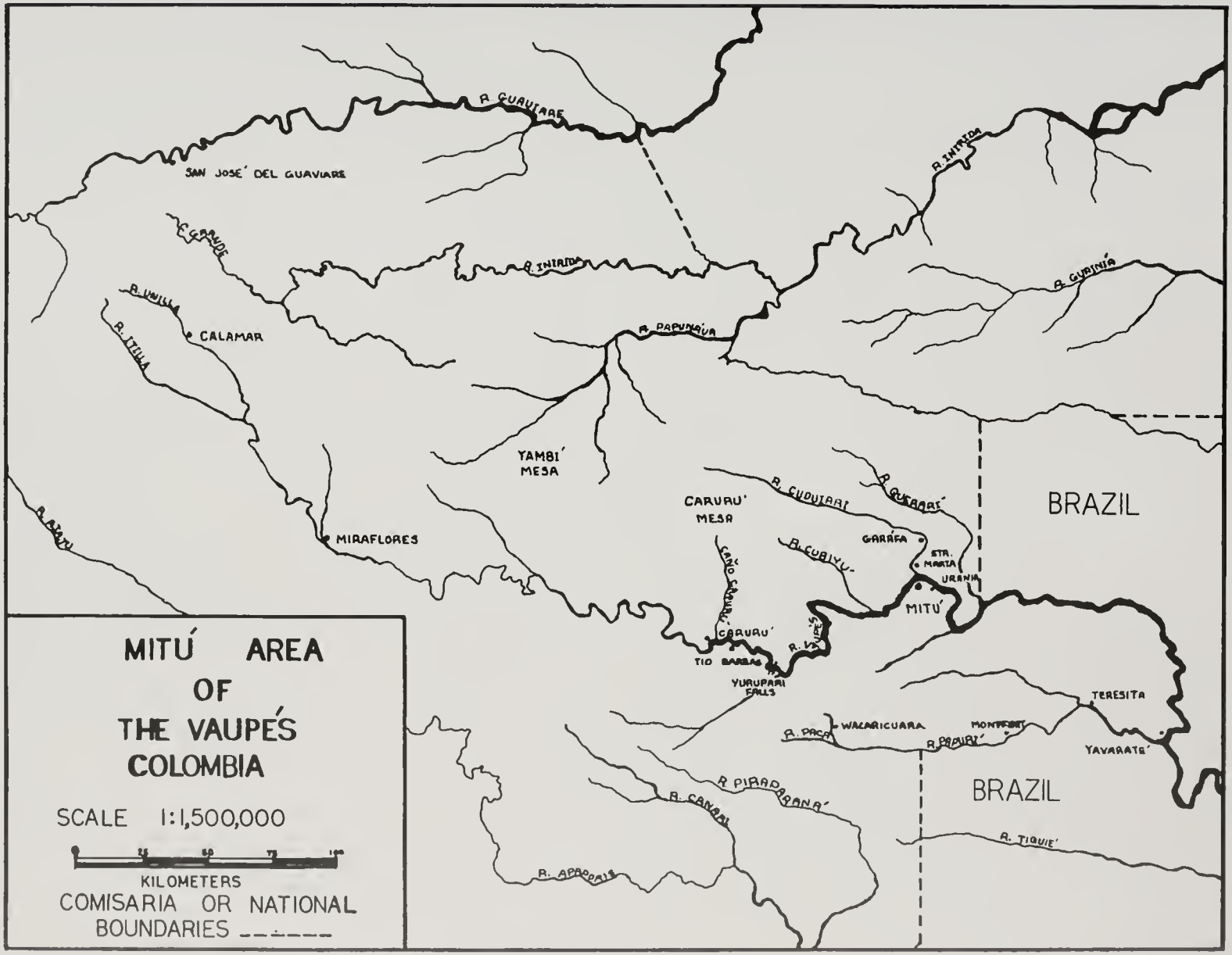
The first man known to have entered the Vaupés region was also a priest. In 1570, Padre Figueroa traveled from the Amazon up the Río Negro and explored part of the courses of both the Vaupés and the Papurí.[2] Despite these early excursions into Amazonia, no permanent settlements were made in the area which was later to become a part of Colombia.

The discovery of the Casiquiare Canal in 1750 stimulated settlement interest. The increased trade made possible by this water route connecting the Orinoco and Amazon drainage basins led to Portuguese fears of Spanish intrusion into Brazilian territory. The town of São Gabriel (Uaupes) was founded near the junction of the Vaupés and Río Negro to reaffirm Brazilian authority.[3] During the same period the Jesuits of San Ignacio de Loyola began establishing missions and drawing the Indians to them to learn of Christianity and agriculture. The Jesuits achieved considerable success in both areas of endeavor

before being expelled in 1765.[4]

It was not until the middle of the nineteenth century that further serious efforts were made to explore or colonize this section of Amazonia. In 1852 a Carmelite, Padre Gregorio, set up a mission at Cararú which was rather successful in attracting Indians to it, but it was closed in 1881.[5] Also in 1852 the botanist Richard Spruce came up the Río Negro and attempted to ascend the Río Vaupés. He was able to get only as far as the falls at Yavaraté before the problem of negotiating the rapids and falls during low water stalled him.[6] During the same year (1852), Alfred R. Wallace was studying the vegetation of the Amazon. He had better luck or rather arrived at a more propitious time, and was able to reach the mouth of the Cuduiarí on the Vaupés. At this point there was an Indian village (Mucura) where he stayed for some time. This location is approximately three miles downriver from the present site of Mitú. The isolation of this place was such that he was moved to write that he was in an area "where no European had been."[7]

Outside interest in Amazonia increased with the demand for rubber which arose in the early twentieth century, but there had been little contact with Europeans by 1909-10 when both Whiffen[8] and Rice[9] made trips through on the Vaupés. The latter had traveled overland part way


R. GUAVIARE
SAN JOSE' DEL GUAVIARE
R. INIRIDA
R. GUAINÍA
R. PAPUNAUA
R. INIRIDA
CALAMAR
R. ITILLA
R. ITILLA
YAMBI'
MESA
MIRAFLORES
R. ARIARI
CARURU'
MESA
R. CUDUIARI
R. QUARARI
BRAZIL
GARÁFA
R. CUBIYU
STA.
MARIA
URANIA
MITU'
CARURU'
TIO BARBAS
YURUPARI
FALLS
TERESITA
WACARICUARA
R. PACA
R. PAPURI'
YAVARATE'
BRAZIL
R. PIRARARANA'
R. CANARI
R. APARRAIS
R. TIQUIE'
MITÚ AREA
OF
THE VAUPÉS
COLOMBIA
SCALE 1:1,500,000
KILOMETERS
COMISARIA OR NATIONAL
BOUNDARIES

from Bogotá and noted that San Martín, on the Llanos, was the end of government.[10]

Rice traveled rather extensively on the Unilla and Itilla rivers which merge below Calamar to form the Vaupés proper. With numerous side trips up tributaries, he then proceeded down the main river to its junction with the Río Negro and exited by way of Manaus. In the course of his report he mentioned the death of four Colombian rubber gatherers at the hands of the Indians in 1904.[11] He also alluded to earlier slaving raids by the Portuguese from the Río Negro as having been instrumental in fostering attitudes of distrust or belligerence toward visiting Europeans.

During this same period (1904), Dr. Theodor Koch-Grunberg began his ethnographic studies in this area. He continued intermittent field work in northwest Amazonia until his death there in 1924.

Increasing interest in this part of Amazonia lead to the creation of the Vaupés comisaria in 1910 when it was separated from the old national territory of Caquetá.[12]

Eder reported that in 1913 there were 400 rubber gatherers working in the Calamar area. They collected primarily caucho negro by cutting down the tree and draining the entire trunk.[13] Although the interest in Amazonian rubber was lessening at this time, the influx of outsiders was a stimulating factor in the establishment

of Catholic mission stations in the area.

The first permanent mission was on the Papurí river by a Dutch order, the Montfortianos. They came up the Amazon and Río Negro to reach the site of present day Montfort in 1914. In 1916 a temporary mission was set up at Urania, where the Cuduiarí joins the Vaupés. The higher land was considered much healthier than the surrounding area, but when attempts to purchase the house and land there were unsuccessful the mission was moved up the Cuduiarí river to Santa Maria.[14]

According to some of the older Indians, when the white rubber collectors began to enter the Vaupés, there were three major villages, one at Urania, one on the left bank of the river opposite present day Mitú, and the third up river a short distance where the internado is now located. They say there were more people in these three villages than are now left in the entire area. Census data does not appear to bear out this statement but the relatively dense population at Urania and along the lower Cuduiarí was certainly a factor in the location of this first mission.

Explorations continued during the 1920's even though there was less interest in rubber. Many of these expeditions were better equipped and more scientifically oriented than those who came before only "to look." Rice returned with a mapping and medical survey team.[15] Newcomers included

F. O. Martin, an employee of the Union Oil Co., who covered the northwest edge of the selva while assessing the potential for petroleum deposits.[16] C. F. Marbut and C. B. Manifold also attempted to describe and explain the topography of the Amazon Basin as well as to study the soils there and evaluate their use for various types of agriculture.[17]

In 1927, the Montfortianos also established a small mission station at Mitú. Several more blancos were attracted to the area at this time as a result of a small "Balata Boom." Balata is a substance resembling rubber which was obtained by tapping trees. Its main use was as a belt dressing i. e.: to keep heavy belts powering machinery from slipping.

During the 1930's rapid changes occurred in the Vaupés. The most important of these was the movement of the capital from Calamar to Mitú. The move was prompted by a desire to maintain a stronger hold on the border area to forestall any Brazilian expansion, and this goal was achieved.

The influx of administrative workers and the police force extended federal authority, and the introduction of better communications, with monthly flights, also promoted the growth of the town. However the move was not a complete success for as Dr. Crist has written, ". . . although planes speedily cover distance, they do not achieve spatial

spread."[18] The move was criticized by a local official who wrote, ". . . they believed it was better to leave the capitals near the borders of the country, a sin of ignorance. The location of the capitals near the borders left them unarmed and forsaken, without means of communication other than the airplane and began the backwardness that they denounce today. It is impossible to bring in all the necessary elements of a higher civilization using only airplanes."[19]

In 1939, Irving Goldman, an anthropologist, arrived and spent several months living among the Cubeo indians on the Cuduiarí River. His work is the most complete and detailed description of Indian life which has been published.[20] The bulk of it is anthropological but there is also a great deal of information valuable to a geographer or anyone else interested in living in the Vaupés or in assessing the economic potential there. By this time there was also an Indian school in Mitú and efforts to incorporate the Indians into the cultural mainstream of the nation were beginning in earnest.

The arrival of people, ideas, and money during World War II brought about a second revolution in Mitú. The Rubber Development Corporation (RDC) financed rapid expansion in the rubber industry and also brought in the first outboard motors which have so completely changed transportation patterns. Indians, whose way of life had

scarcely been effected by three hundred years of intermittent contact with the outside world, were in a few months enmeshed in efforts to earn money for all kinds of manufactured products. The volume of trade goods brought in was greater than had ever been seen before and improved transportation brought in many more people to promote rubber collecting and hire the Indians.

The RDC also brought in many American scientists to determine what the potential supply of rubber was, and also to suggest more efficient means of collecting and processing it. As scientists, they were trained observers, not only of vegetation but of the entire way of life. Two of these men - Richard E. Schultes and Paul H. Allen - have continued to study and report on this area since their initial contact with it during the war time search for rubber. The published reports of their findings have added immeasurably to the knowledge of the northwest Amazon.[21]

During this period of development, the Catholic church continued its missionary activity. Decreto No. 914 of 1946 was issued which gave broad powers to the Church. The Monseñor was given authority to sentence persons to labor on public works for offenses of drunkenness, fighting, or "acts against the public morality."[22]

Toward the end of this decade, the order of Montfortianos was replaced by a Colombian order - the Javerianos -

who began more intensive efforts to nationalize the Indians and make them "Colombians" as well as Indians. Intruction was given in Spanish and some aspects of the Indian culture were discouraged.[23]

Protestant missionaries also began proseletyzing at this time and their efforts have continued with increasing success. A large number of the Indians are professing and practicing Protestants and any evaluation of cultural or economic changes must consider this element.

The greatest changes to occur since 1950 have been: the building of a large Catholic church and enlarging the boarding school (internado) for Indian students, the construction of a new government building, and the improvement of aerial communications.

The Vaupes was greatly reduced in size in 1963 when the northeastern part of the comisaria was removed to form Guainía. The separation was authorized by Law #18, 1963 but the split did not really occur until December 1964.. In view of the transportation difficulties the division is probably justified. Development of the Vaupés will not be hindered by the split and Guainía will receive much more attention as a separate comisaria than it would as an isolated part of the Vaupés.

Many anthropologists have come to study the Indian cultures. Several of these studies were still incomplete in 1970 but Gerardo Reichel-Dolmatoff has been working in

the Vaupés since the early 1950's and has written many anthropological articles as well as a part of the O'Leary bibliography dealing with the Vaupés.[24]

Irving Goldman also returned in 1970 to do a follow-up study and revision of his earlier work on the Cubeo indians.

Over the past centuries, and especially in the years following the work of Hamilton Rice, much has been written on the Vaupés and Northwest Amazonia. Most of these works have been rather narrow in their scope and this present paper is an attempt to view the many facets of Man operating in an Amazonian environment and to evaluate his successes and failures. The optimum means of utilizing the large land area of the Amazon Basin have not yet been determined. Some of the problems that have evolved with various aspects of human incumbency in that area will be discussed and some suggestions as to possible future development will be advanced.

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CHAPTER IV

PRESENT DAY MITU

Population

The population of Mitú, as listed in the 1964 census, is 2,360, or about 17% of the 13,403 living in the Vaupés.[1] This figure is probably too high, but certainly is closer to reality than the report of the 1969 World Almanac (Spanish Edition) which showed a population of 6,500! Historical accounts of population in Amazonia over the years show a great disparity, making it difficult to arrive at anything but a reasonable guess.

A 1925 report on the Amazon in general lists the population of the Vaupés at 5,500 but then goes on to state that this figure is too high.[2] The government census of 1918 shows 6,355 and that of 1928, 9,332.[3] Estimates of Mitú's population by various visitors also show great divergence. The oldest resident said that in 1929 there were only twelve families in the Mitú area.[4] These families formed the nucleus of the early town and several operated the first stores there. Builes, in 1951, didn't venture a guess as to the population but counted fifty houses. The first padre in charge of the mission station arrived in 1949 and in a book published in 1952 reported forty-five houses and a population not exceeding four hundred.[5] Another writer in 1953 did not count the Indians

but found 150 men and thirty women living as "criollo colombianos."[6] Just four years later a writer counted sixty homes and estimated the population at 1,500.[7] Using these figures, the number of occupants per house would figure out to twenty-five, a rather unlikely number. He probably counted the houses correctly but then included all Indians from the area as part of the town's population.

TABLE 1.--Population Data For The Vaupés

Year	1912	1918	1928	1938	1951	1964
Population	5545	6355	9332	7767	9169	13,403

[a]Data extracted from official census of 1938, 1951, and 1964.

In 1964 Lambert estimated the population as between sixty and 1,000 depending on the season.[8] An interesting aspect of this estimate is that he was traveling with the census survey team and yet arrived at a very different figure from what was officially reported. (As listed above).

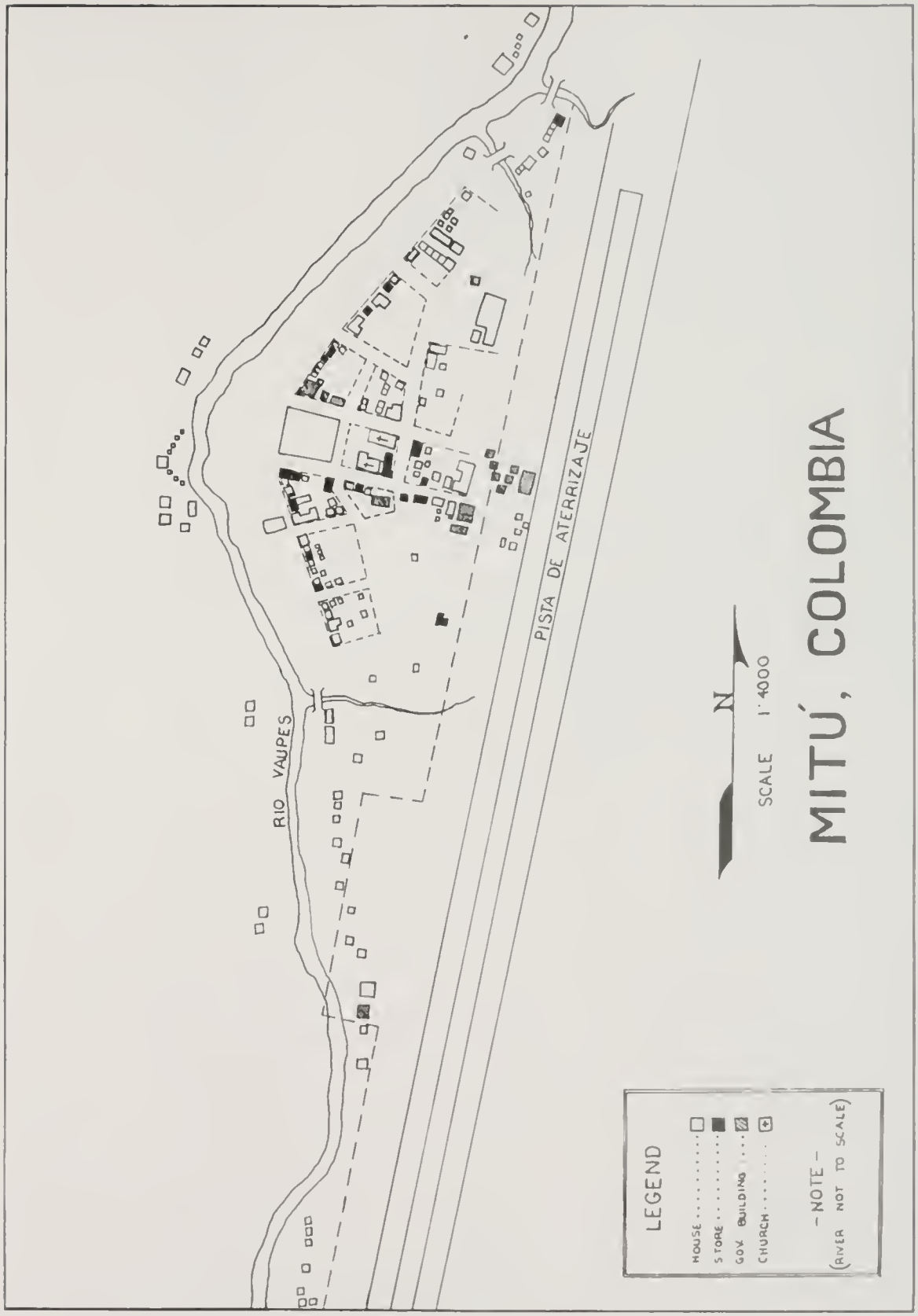
There is a great fluctuation in the population of the town as empresarios go out into the forest to supervise the crews of Indians tapping the rubber trees. When the rains increase and the season is over both bosses and workers return to town, thus temporarily increasing the population far beyond the normal figure. During much of the year

some houses are completely vacant and some open "houses" are only briefly occupied by transients passing through. As a supply and service center for a large area, Mitú attracts people from great distances and they often stay several days for a taste of "city living" before returning again to the isolation of their home.

Based on the number of houses - approximately 125 - and estimating the number of occupants, the population in early 1970 was approximately 600. This is also fairly close to the estimate of 500 made by Gerardo Reichel-Dolmatoff, who has done a great deal of anthropological research in the area.[9] In addition, there are another 250 people living at the internado most of the year as students, workers, or teachers.

Complaints about the inaccuracy of the 1964 official census in the comisarias and intendencias were general and a suggestion was made that the federal agency responsible for the census, station a representative in the capital city of each of these political subdivisions. Their task would be to supervise more closely the actual work done by civil servants, teachers, and advanced students.[10]

The director of the national census understandably views the reported figures differently and attributes the high rate of growth for the Vaupés (47.97% between 1951 and 1964) not to an influx of settlers or a high


MITÚ, COLOMBIA
N
SCALE 1:4000
PISTA DE ATERRIZAJE
RIO VAUPES
LEGEND
HOUSE
STORE
GOV. BUILDING
CHURCH
-NOTE-
(RIVER NOT TO SCALE)

birth rate, but rather to a more efficient system of enumerating the population.[11]

For those revisiting Mitú after an absence of a few years, it is obvious that the town is continuing to grow and to supply more services than it did in the past. Business is not expanding rapidly but new stores are opening and new houses are being built. While in the past new residents came largely from outside urban centers, Indians who formerly lived in the forest are now beginning to move to town. The attraction for outsiders is somewhat limited by the over concentration on rubber production which is becoming less profitable each year. As reported by the 1964 census, only about 15% (2,008 of 13,403) of the residents were born outside the comisaria. This figure may be interpreted as a measure of the lack of attraction of the Vaupés for residents of the departamentos.

The major groups of "outsiders" have been the religious missionaries, government employees and the police force.[12] The police are rotated periodically and some missionary personnel are still recruited from other areas but many of the government employees have been there many years and the younger workers are hired from the local population. Many of the missionaries, both Catholic and Protestant, have also been there several years.

Along the Guaviare River and even as far south as

Calamar, where agriculture is more successful, the influx of settlers from outside the Vaupés has been heavy. After an article describing the possibilities of settling this area was published in a national newspaper, more than 2,000 people wrote letters of inquiry.[13] To appreciate fully the significance of this response one must be aware that Colombia, like much of Latin America, was experiencing at the same time a period of very rapid urbanization, with many people leaving the land for the city.

Due primarily to better transportation, as well as to more agricultural potential, it seems likely that the balance of population will soon shift to this area along the Guaviare River, perhaps even at the expense of the capital, Mitú. The rate of growth along the Guaviare is so rapid that the total population may triple in a period of only ten years.[14]

It has been written that "The Amazonian forest is a great cemetery which absorbs what is left of the Indian population of Colombia."[15] Gourou has made the comment that the population of Amazonia was destroyed by diseases not endemic to the area and that the encroaching Europeans never replaced the natives.[16] Both of these statements appear valid as many areas of Amazonia are almost void of people.

One of the richest rubber areas of the Vaupés is the Apaporis Valley. When the Rubber Development Corporation

wanted to exploit this supply during World War II it was necessary to fly in Indians to do the work as there were none living there.[17]

It now appears that these vanished populations may be replaced by incoming settlers who will very likely not settle first in the area of Mitú. They may reach this area eventually, but only after the more accessible and fertile land along the northern border of the comisaria has been occupied.

Economy*

The principal capital producing elements of the economy are government expenditures, in the form of the local payroll or to finance improvements in local living conditions, and the collection of wild rubber which is then sold to the government agency.

The development of retail trade, prices, and agricultural sales are in large part dependent on these initial sources of capital. While the various elements of the economy are considered separately, it must be remembered that they are all inter-related and basically dependent on the government or rubber for any real stimulation of their growth.

Government Employees and Subsidies

The government employees are extremely important to the economy of Mitú. They are virtually the only workers

*(All prices quoted are in Colombian pesos, 18.50 @ dollar)

with a regular income and they form a major portion of the employed segment of the population. The comisaria itself employs thirty-five workers while the Policia Nacional has another eleven employees. The Caja Agraria also employs about fifteen workers. Others receiving their salaries from government sources include the radio operator and maintenance man, all the teachers and the hospital staff.

There are also numerous government employees at San José and Miraflores as well as a few others in smaller settlements. As is often the case in developing countries, it does not seem that all these government workers are fully employed but they all perform some service and they receive a salary which is rather quickly spent and adds to the local supply of money.

The revenue from the area is far from adequate to support such a payroll and the majority of the budget is derived from federal sources. Table 2 shows how dependent the Vaupés is on the central government and also how much the level of support has varied over several years. These direct grants from the national government to territories and intendencias were authorized by law #10, 1930 (Oct. 8). Although the wisdom of such spending might be questioned, the present role of many of these territories is to protect the border land from further encroachment by neighboring countries and this is especially important in the Amazon Basin where Colombia has already lost 180,000 KM^2 to Brazil since 1907.[18] If the present

boundaries are secured against further losses most Colombians will consider the money well spent.

TABLE 2.--Budget For The Vaupés Comisaria

Year	Amount Raised within the comisaria	Percent of the Total Budget	Federal Subsidies	Total Budget
1959-60	120,541	22.9	405,034	525,575
1960-61	250,423	32.3	525,000	775,423
1961-62	214,396	17.2	1,030,000	1,244,396
1962-63	47,024	3.0	1,516,318	1,563,343
1963-64	45,396	7.5	563,157	608,553
1964-65	51,379	2.8	1,763,132	1,814,511
1969-70	199,854	2.7	7,219,194	7,419,048

[a]1959-1965 Data from Memoria del Primer Congreso, Doc.#26 (Bogotá, 1966), p. 8.
[b]1969-1970 Data from Comisaria records in Mitú.

Even though federal expenditures exceed income from this area, the level of spending is far below that for the rest of the nation. In the departamentos (more highly developed areas with greater population) federal spending averages $1,000 per square kilometer while in the Territorios Nacionales, spending averages only $1 per square kilometer.[19] In 1962 the central government spent only .32 per cent of the national budget ($7.6 million of $3,526 million) in the outlying lands. By 1966 this percentage had dropped to .17 per cent ($7.1 million of $5,529 million)[20] while the constitution called for 2 per cent of national budget to be spent in these lands in order to stimulate their growth and development.[21] During this same period the total budgets of all Territorios Nacionales

increased from $32.3 million to $36.5 million, with more than 83 per cent of the increase being derived from local sources.[22] Thus the federal government has failed to maintain its level of spending in the outlying areas and more and more of the burden has been shifted to the local governing bodies Because of the importance of the Vaupés in rebuffing any Brazilian advances, it has received somewhat better treatment and in 1969-70 was required to raise only 2.7 per cent of its total budget. The remainder was provided from the national treasury.

A law passed in 1943 (Art. 10, Law 2A) gave intendencias and comisarias the right to establish duties and taxes on goods coming into their jurisdiction. This practice had previously been adopted by the departamentos as a means of financing local government and it seemed the logical answer for financing other political subdivisions. However, this program which had worked rather successfully in other areas has not raised sufficient revenue to support the national territories. The basic problem is that there are simply not enough people to create the demand necessary to generate revenue. This condition prevails in spite of a 20 per cent tax on liquor, beer, and cigarettes and a 10 per cent tax on all other incoming merchandise.

Of this income, 30 per cent is remitted to the area government while 70 per cent is retained within the municipio or corregimiento where the sale was made, to finance local projects.[23]

In 1964 the tax on alcoholic beverages and cigarettes yielded 79 per cent of locally raised income while in 1970 this percentage was down to 49 per cent.[24]

A major portion of each budget is paid as salaries, most of which is spent in Mitú. If, as has been suggested by some, the capital and its employees were moved from Mitú to San José, the town of Mitú would die and all that would remain would be an area of rastrojo, or second growth forest.[25] Further enhancing the value of the government workers to the economy is the fact that their salaries increased approximately 200 per cent between 1964 and 1970. During the same period consumer prices of food and other necessities generally increased 100 per cent or more. (See Table 4).

The purchasing power of these workers is thus greater now than in the past. Conversely the price of good quality rubber has increased only 18 per cent. Therefore all those workers engaged in collecting rubber have suffered a reduction in their purchasing power which made the government employees an even more important element in the economic health of the town.

The government enters trade directly through two agencies: the comisariato, a retail store, and the Caja Agraria, a multi purpose organization.

The comisariato was originally established to supply the needs of governmental workers when there were very few stores operating in Mitú. With the rise of the indepen-

dent stores its stock has been reduced but its sales still amount to hundreds of thousands of pesos each year. (See Table 3). Total sales had increased markedly for the three complete years shown but were lower during the first two months of 1970 and also the first half of March (not included in table).

TABLE 3.--Sales In The Mitú Comisariato

Month	1967	1968	1969	1970
January	10,243	18,741	33,642	25,996
February	14,477	26,124	34,527	28,985
March	28,950	25,054	39,870	
April	14,991	27,243	44,548	
May	26,064	31,756	45,388	
June	32,534	33,647	38,687	
July	39,763	48,811	48,819	
August	29,772	38,525	54,683	
September	26,496	31,513	33,635	
October	34,295	29,305	26,581	
November	13,782	31,689	33,814	
December	25,439	45,154	43,224	
TOTALS	296,806	387,572	477,418	

[a]Data supplied by Señor Amisquita, Manager of the Comisariato, March 20, 1970.

Sales tend to be higher during June, July, and August after the rubber workers have been paid off. During the first half of the year, when the workers are out in the woods, sales are generally lower.

Anyone may buy in this store at prices somewhat lower than the privately owned stores but the stock is limited. There was a large stock of canned goods but these are too expensive for many people. The only commonly used foods

Fig. 12 --Generator House. This concrete block building houses the new diesel generator. Both the truck and bulldozer were flown in and re-assembled.

Fig. 13--The Caja. The Caja Agraria has been enlarged in spite of the declining rubber business.

were rice, sugar, and potatoes.

The agricultural office or Caja Agraria is another governmental element of vital importance to the economy. By law it is the only purchasing office for rubber collected from the forest and serves to maintain the standard price set by the government. It also offers many items for sale at prices somewhat lower than those of privately owned stores. In addition it functions as a bank of sorts, the only facility of this type in Mitú. Loans are made to finance rubber collection and local home improvements. It is possible to deposit money there and withdraw it at a later date. Also, money deposited in the Bogotá office may be collected from the Mitú branch, thus reducing the amount of cash which a businessman or traveler must carry. Considering its role as the primary money handling agency in town, it was a surprise to learn that it was impossible to exchange large bills (500 pesos) for smaller denominations; however, the supply of money in the town is limited and they do not want it tied up in large bills. (In the past a "flying bank" has operated with a representative of a Villavicencio bank flying in each week to handle the accumulated business and then returning on the same flight).

A vital role of the Caja Agraria is the supplying of gasoline to power the many outboard motors. (All gas arrives by plane).

Because of the expense of buying in quantity, few

residents are able to buy gas "on the outside" and ship it in. Therefore, almost without exception, all gas used in the area is sold through the Caja.

All gas arrives by plane in 55 gallon barrels and is either dumped into a larger underground tank or siphoned directly into gas tanks. An improvement to the system was completed in 1970 when a pipeline from the airport to the storage tank was completed. This new line made possible the emptying of the barrels as soon as they were unloaded and obviated the need to roll the barrels to and from the Caja. Considering the supply of labor available, the justification for such an improvement may be questioned.

Although gas arrives almost daily, there is rarely a large reserve and often travel is curtailed until a new supply is brought in. The price is high but so are transportation costs and there is virtually no competition.

During 1969-70, the building in which the Caja is housed, was being expanded and building materials arrived in chartered planes as well as on the regular passenger flights. Most of the construction is of concrete blocks. The cement used in the blocks arrived on almost every flight. Some have argued against the use of this construction as too costly, in a land surrounded by trees and where cement must beflown in, but its use continues. Many of the townspeople were employed as laborers and considerable money was added to the economy. Most of these workers

Fig. 14--Mitú Plaza. In the foreground the Mitú plaza, in the background the house of the Comisário and government headquarters building.

Fig. 15--Colegio "José Eustacio Rivera." The secondary school was opened in 1963 to complete the educational program.

were engaged in menial jobs; the six carpenters who were doing the finishing work on the interior were flown in from Bogotá.

Another arm of the federal government which forms an important part of the economy is the Policia Nacional which is responsible for enforcing the laws and maintaining order in the town and surrounding area. In general, the demands of their job are not great; they arrest the occasional drunk who becomes too belligerent; they check the baggage of foreigners; but they are also called upon to arrest murderers and others who commit felonies. Although their assignment in Mitú is temporary the members of the Policia Nacional take an active role in the sports and social life while they are there.

The ten men stationed in Mitú spend a major portion of their pay in the local stores and aid the economy. Their influence would be even greater if they bought more of their food and supplies in the local market. Most of their food is purchased in Villavicencio and is flown in. This is more expensive than buying locally produced food and also means a reduced demand and market for food grown by local settlers.

Both the hospital workers and the teachers are almost completely dependent on the local stores for their food and other necessities. Like most of the other government employees their salaries have tended to rise as rapidly

as prices and they have maintained their purchasing power. Because of this, plus the dependability of their income, they are very desirable customers.

Retail Stores

There are many smaller retail stores in addition to the Caja Agraria and the comisariato already mentioned. One of the more important stores is run by the mission personnel in the Catholic Church compound. Because of the greater capital available to them and their better contacts on the outside, they are able to maintain a larger stock than most privately owned stores. Prices are competitive with other stores but not especially low. As the official agency for the distribution of both "CARE" and "Caritas" (A Catholic relief organization) supplies they are able to supplement their commercial stock with other donated items. In the past there have been reports of donated items being sold to residents, but in general such items have been used as prescribed and the store is able to provide a larger choice of products than most stores.

The stock of independent stores varies a great deal from week to week. When the stock runs low the owner generally goes out to Bogotá or Villavicencio, the closest point with an ample supply source. Due to the lower prices and larger choice available, the majority of the proprietors prefer to buy in Bogotá. Transportation costs consume some

of the profit, but by utilizing the Satena flights, which are partially subsidized by the government, the cost is only $2.40 per kilo which is the same as the Urraca rates from Villavicencio (See Table 6).

Since the volume of sales is low and most of the merchants do not have a great deal of capital available, there are often times when shelves are virtually bare. For several days the stock of one store consisted of matches, writing tablets and bread. Without the bread customers, business would have been almost nonexistent.

Many residents complained that while the stores were completely out of rice, potatoes, sugar or other staples, there was always an ample supply of beer. During the period when the field work was completed there was never a time when beer was lacking in town. There seems to be some status in drinking beer and the demand is great even when economic conditions are poor.

Marcos Fulop noted in 1953 that there was a great scarcity of food in Mitú's stores, at least in part due to the propensity to bring in trade goods for the Indian workers and liquor for the Colombians, rather than food.[26] Although there are more flights today, the tendency to move non-food items is still apparent.

The primitive state of the economy necessitates very little specialization in the stores. Virtually all carry an identical stock and if one runs out he never hesitates

Fig. 16--Garcia's Store. One of the better stocked retail stores of Mitú. Because photographers are not common the owner's young son was also included in the picture.

Fig. 17--Tito's Oven. Tito's oven with a fire laid. After the oven is heated, the fire is removed and the bread and rolls inserted.

to patronize his competitors. Also like most small stores in Latin America, the commercial part occupies only the front of the building and the family lives in the back.

The only material advantages that one possesses over another is a slightly larger stock or a kerosene powered refrigerator which may permit him to sell jello or other products which require refrigeration.

Business is also somewhat stifled by the lack of money to make change. If a customer attempts to pay for the purchase of an item costing one or two pesos with a twenty peso bill, the proprietor often must go in search of change from a neighboring store. Though they are competitors, there is great cooperation between most of the merchants.

Wives are often involved in running the stores while the husband seeks to supplement the income in various other enterprises. Many of the merchants earn extra money by serving as agents for the several small airlines that fly regular schedules to Mitú or make an occasional charter flight in.

With some twenty-one shops serving as retail outlets, Mitú is obviously over commercialized, but there is no apparent solution to the problem. The large number of stores is required to provide the goods that are required by all the people living within that section of Colombia. The rubber empresarios and others living in the forest travel several days to reach Mitú and replenish

their supplies. If it were not for the greater resources of the Caja Agraria and the comisariato, even this number would not be sufficient to meet their demands. Each merchant is so limited in his capital that he can only buy a small stock and must wait until it is virtually all sold before he again has enough money to finance a trip to Bogotá or Villavicencio to buy a new supply.

Three or four merchants with more adequate financial resources might provide a much better choice of merchandise but storekeepers with that much capital have found investments for their money that offer far less risk. The rubber business of the Vaupés is far from lucrative and many merchants have not been able to collect for the supplies they have advanced on credit. Due to the problems of selling rubber and collecting their pay, the caucheros are often without funds and must be "carried on the books." Thus only people with a little money, which they are willing to risk, attempt to operate in this town.

Table 4 showing the rise in prices between 1964-70 indicates one of the economic problems of the Vaupés, and of Colombia. Inflation and rising transportation costs have led to great increases in prices while the price of rubber has gone up very little. The most directly effected are the caucheros, but the merchants are also being adversely effected. The size of their stock is progressively limited by skyrocketing costs and the problem

of collecting their debts is much greater.

TABLE 4.--Retail Price Increases Between 1964 and February, 1970

Article	1964 Price	1970 Price
Rice (Kilo)	$ 3.50	$ 6.50
Peas (Kilo)	4.00	10.00
Sugar (Kilo)	3.00	4.90
Beans (Kilo)	5.00	10.00
Canned Crackers	22.00	40.00
Potatoes (Kilo)	30.00	46.00
Cooking oil (gallon)	30.00	46.00
Alcohol (bottle)	5.00	10.00
Candles (dozen)	3.00	7.00
Workshirt	12.00	20.00
String Hammock	50.00	95.00
Underwear	12.00	20.00
Raincoat	43.00	120.75
Hammer	10.85	32.15
Handsaw	18.85	20.95
Machete (20")	14.30	30.70

[a]Data for 1964 from Alvara Guzman Cortes, "Panorama de la Comisaria del Vaupés," Revista Policia Nacional de Vaupes, Año LI, No. 104, Segunda Epoca (1964), p. 15.
[b]Data for 1970 compiled in Mitú stores.

What is needed to stimulate trade is a crop or product which could be spread over the year to keep capital moving. When the season's collection of rubber is sold there is money, but this is soon spent - often on last year's debts - and very little money circulates until the following May when the rubber is again brought to town. With the decline in the rubber business, even this economic stimulus is beginning to weaken.

The stores of Mitú offer only a very limited stock, but they are providing high risk capital in an area that desperately needs it. If Mitú and the eastern Vaupés ever

develop into a truly viable economic region, these merchants with their inadequate stocks will have been largely responsible for sustaining it until a stronger economic base could be developed.

Rubber

The "rubber" industry in the Vaupés began with the collection of balata from a species of the Manilkara tree. At this time - early in the twentieth century - all sales were made through Manaus and trade goods also came from there.[27]

The dominance of plantation rubber from the East Indies then lead to a decline in interest in Amazonian rubber which was more expensive and often of an inferior quality. As long as the eastern rubber was available, there was no demand for that of Amazonia which was collected from scattered wild trees by Indians who were not well trained and had little interest in their work. The movement of the Japanese forces into the Pacific during World War II cut off the supply of plantation rubber and this, coupled with the increased demands of a full scale war brought about a renewal of interest in the wild rubber from this hemisphere.

Nationals of the Amazonian countries were encouraged to reopen old rubber trails and the Rubber Development Corporation was organized and financed by the United States government to determine the extent of the reserves

available for development and to recommend ways to increase the current levels of production.

The Rubber Development Corporation (RDC) was extremely important in the development of Mitú. Not only did the increased demand and higher prices stimulate gathering, but the new techniques introduced raised the quality of the rubber collected.

Prior to the arrival of the RDC technicians, the rubber was all made into large "balls" by pouring the latex on a stick which was suspended across a fire. By continuously turning the stick, successive layers of rubber were applied. The smoke from the fire helped cure the rubber and retarded the growth of molds and fungi which could contaminate it. The new method was to mix the latex with water, strain it to remove any trash, and then stir in enough formic acid to cause it to coagulate. The rubber floated to the top and was then run through rollers to remove more of the water and transform it into thin strips. The strips were draped on racks and smoked before being pressed into bundles. The end result was a better quality rubber which could immediately be classified as it was all visible. The older "balls" often contained various types of latex and it was necessary to cut them up to determine what quality they were. One of the major problems of quality even today is that the rubber is often not clean or is contaminated by fungi after being packed.[28] A local

processing plant and better storage facilities could help alleviate this trouble.

The RDC also recommended better techniques for tapping the trees to increase the yield while also insuring the long life of the trees. (Some types of trees must be cut down to collect the latex but most are tapped by cutting diagonal lines part way around the trunk so the rubber drains into a cup suspended at the bottom.) Early collecters used hatchets to cut through the outer bark and into the cambium layer. This often resulted in the death of the tree. The lack of trees in the Vaupés showing scars of previous tappings led RDC personnel to speculate that either they were killed by the crude methods used or that very few of them had been worked prior to the 1940's.[29]

The new knives introduced have a small hook on the end of the blade which simplifies the grooving and minimizes the danger of permanent damage to the trees.

There are few Hevea brasiliensis trees in the Vaupés. Most rubber is collected from Hevea guianensis and Hevea benthamiana trees and neither of these varieties has the quality of the brasiliensis.[30] They grow along the rivers and watercourses at the rate of about 8 - 20 per hectare.[31] As each worker taps 100 - 150 trees per day he must often walk 10 - 15 kilometers twice daily.[32] The time spent in travel between trees is one of the chief drawbacks in the

Fig. 18--Raw Rubber. Bundles of new rubber are stored on the porch before being taken to Caja Agraria for sale.

Fig. 19--Selling Gasoline. The Caja buys all rubber and dispenses virtually all the gasoline used in the area.

collection and utilization of wild rubber.

For many years residents of Amazonia have been advised to plant young trees between the native trees so that ultimately the trail, or trocha, through the forest would be lined with producing trees. As long ago as 1949, there was discussion of planting rubber but the recommendations have not been carried out.[33]

An even more productive idea was that proposed by Schultes in 1945 when he recommended the planting of small family "plantations" containing from 500 to 1,000 trees with the seeds being procured from trees with records of superior production.[34] By utilizing only high producing trees, yields would be greatly increased and by planting them near the house, the worker would be able to care for them while they were young. He also would be spared the long hours walking along the forest trails. A farm in the Vaupés planted with good clones could produce as much as 2,500 kilos per hectare while one planted with seeds collected from the forest would probably not yield more than 500 kilos per hectare.[35] When the price of rubber was high enough to justify collecting from the trees, they could be worked but when the price dropped, the settler would not tap them but could devote his time to subsistence agriculture or to other crops. This system presupposes that the individual would have the time to carry on the planting operation and also a very limited

amount of capital. It would be necessary for the government to carry on the selection and seedling program in order to offer productive young plants at a minimum price.

One of the worst aspects of the native rubber industry is the labor system which was devised, or perhaps evolved, to make it work. The scattered trees can only be tapped by clearing a path from one to the next closest tree. Because the trees grow only near the rivers, the ground is low and often cut by watercourses. Fallen trees and other obstacles make walking difficult. From the earliest days of the rubber industry, local Indians have been recruited both to cut the trails and to collect the rubber. Numerous books and articles have been written describing the treatment of these Indian workers - the best known perhaps being Roger Casement's report of the rubber industry on the Putamayo River in 1912. Conditions for the workers have been improved since that time but many Indians remain in a virtual state of slavery to the empresarios who have advanced them trade goods.[36]

In order to hire Indians to work rubber, the employer must have a statement from the local monseñor (chief priest) that he is a responsible citizen. This document is then shown to the Protector of Indians who authorizes him to go looking for workers.

Workers are usually recruited in August or September and receive the season's wages in advance. The pay is

rarely in money but consists of cloth, clothing, shotguns, transistor radios, sewing machines or any other item that the Indian might desire. These items are evaluated by the employer and their value entered on the employee's account. The terms of the contract and the amounts advanced are also recorded with the Protector of Indians.

The crew is then taken to the concession area (Inderena has charge of granting these concessions) where they remain until March or April when the heavy rains begin that make collecting impossible. Sometimes a man's family will accompany him but usually the camp is composed only of men. Their days are too long and busy to devote much time to their families in any event.

The day begins as soon as there is sufficient light to work. Each tree on the trail is tapped and a small cup is attached to catch the latex. By the time the tapping is accomplished, it is usually 11:00 - 12:00 A. M. The worker must then go all the way around the trail again collecting the rubber which has drained into the cups. The amount of rubber collected varies with the skill of the worker and the yield of the trees being tapped, but an average day's production is between three and six kilos.[37] When the worker returns to camp, this rubber must be processed and hung up for smoking.

Each worker has from two to four trails which he works on alternate days. The work week is from Monday

through Saturday. Sundays are free and on rainy days no collections are made because the water would dilute the latex too much. These "free" days are usually taken up with housekeeping chores, hunting or fishing.

The employer must furnish his workers with salt, soap, matches, cigarettes and farińa. He usually makes no attempt to supply any meat or fish. Workers carry shotguns with them on their rounds in hopes of encountering game and also spend as much time as possible hunting or fishing.

At the end of the season the rubber is brought to Mitú and sold to the Caja Agraria, the only agency which can legally buy rubber. The amount collected by each worker is then computed and in the presence of the Protector of Indians, the worker is either paid off for any excess over his advances or apprised of how much money he still owes the employer. In most cases the amount collected is not enough to balance the advance and the worker is then obligated to work off the excess the following year. However, before going out again, further advances are made and fresh obligations incurred. In all likelihood the debt at the end of the second year will be greater than it was initially and a further obligation to work is imposed. The only way this cycle can be broken is by an extremely productive year or by someone else paying the debt. If a second person pays the debt he can probably only be

repaid by labor so the worker is not free, he has merely changed masters. After 30 years of work one man at Miraflores had run up a debt of $30,000 which he could not pay off and he was no longer able even to attempt to work it off.[38]

One worker on the Cubiyú took the rubber he had collected to Miraflores, sold it to the Caja and paid his debt with the proceeds. His employer was not pleased and stated he wanted the rubber not the money.

If workers try to run away from the camp they are pursued by the employer, sometimes aided by members of the Policia Nacional. As recently as 1950 such runaways were often returned in chains and some patrons were still whipping the workers.[39] The "Patron System" has been defended as the only means of increasing rubber production by the Indians who were not motivated to work once their immediate needs had been met.[40] If the Protector of the Indians or the local representatives of the Catholic church become convinced that an employer is mistreating his workers, he will lose his permit to hire Indians and will be left with his debts as well as those the Indians owe him. His only chance to recoup his losses then is to try to sell the workers' debts to someone else who can qualify for a permit.

Perhaps the most unfortunate part of the whole rubber business is that no one seems to make any money. The

trade goods paid to the Indians by the employers are usually bought on credit from a local merchant at inflated prices and at the end of the season his sales of rubber are not enough to cover his debts. The merchants must charge high prices because of their expenses, in addition to the high percentage of defaults which they must absorb.

During the 1968 - 69 season one employer with ten workers ran up a debt of $22,000 which the rubber barely paid off. He was trying again in the 1969 - 70 season but experienced trouble with five Indians running away for a time and felt that this would be his last year.

The cost of the trade goods required has gone up much more rapidly than the price of the rubber which he collects. Recently $400 - 500 in goods were sufficient to secure a season's work. Now $1,500 is needed and the worker also demands the use of an outboard motor to transport him to the work site.

Since 1949, the wages of workers have risen more than 1,000 per cent while the price of rubber has gone up only slightly more than 200 per cent. ($3 - 9.95)[41] The cost of farińa and other supplies has also risen, thus further reducing the profit of the employer. The diminishing profits have been reflected in the amount of rubber being purchased by the Caja in Mitú. This figure has dropped from 350 tons in 1967, to 300 tons in 1968, to 200 tons in 1969.[42] Less people are involved in working rubber each

year and the residents of Mitú were not at all optimistic about the future prospects for rubber collecting. The manager of the Caja estimated, that the total number of workers in the Mitú area dropped from 1,560 in 1969 to 1,200 in 1970.[43] Those people still hiring workers seem to be doing so in spite of, not because of, the outlook for profits. There are currently few alternatives open to the cauchero trying to make his living there.

Some of the missionaries have begun to encourage individual Indians to collect rubber on their own without involving a "middleman." The only capital required to begin work is $200 to be paid to Inderena for a concession area, and the acid to promote coagulation. The laminators are widely distributed and probably would not need to be purchased. While this might be more profitable than the present system, it is doubtful that it could exist long. Dr. Schultes predicted in 1945 that after the war years were past, the wild rubber industry would be unable to compete with plantation rubber from the Far East.[44] After almost 25 years, his forecast seems to be coming true, for while the collection of wild rubber was dropping, Colombia was spending more than $50,000,000 annually to import 8,000 tons from the Orient.[45]

Rubber collectors blame the government or the rubber companies for the depressed state of the local industry. They recommend the fixing of higher prices, tariffs and

the establishment of plantations as a means of revitalizing the economy and stimulating the frontier development. The most realistic suggestion is that of establishing small family plantations as originally suggested by Schultes. The lands ecologically suited for rubber production in the 1940's, when the idea was first seriously proposed, remain so today.

Unfortunately all the other social, economic and governmental conditions are also largely unchanged. The plantations that could provide an abundant supply of good quality rubber and furnish jobs for many people will not be planted. In describing the rubber industry of Brazil during its "Golden Era" MacCreagh wrote: "Rubber was such easy money that they never learned to plant a potato or weave a gee-string. They paid for every single thing they ate or used with Black Gold."[46] The rubber is no longer "golden" but many have been so involved in their quest of a sylvan el dorado that they failed to notice the change.

Agriculture

The agricultural practices of the Vaupés are by all accounts primitive and backward.[47] The crops cultivated and the techniques of production which were suitable for the Indian population have not been appreciably modified to accommodate the increasing numbers of mestizos who have come there to work and settle.

Virtually all agriculture carried on in the eastern Vaupés is by Indians. The few *blancos* attempting farming have largely adopted Indian crops and techniques.

Any program which trys to make substantial changes in local agricultural practices must take into account many factors both physical and cultural. A half-hearted or piecemeal plan of development is almost certain to fail. Besides the very basic problem of land ownership and title clearance in a region which has never been accurately mapped or surveyed, other elements of concern must be choice of appropriate crops, soil fertility, insect damage, transportation, low farm prices, and resistance to change.

This situation is not unique to the Vaupés or even to Colombia, but reflects conditions thoughout the Amazon Basin. The "slash and burn" agriculture typical of the area, with its extreme dependence on *yuca* (*Manihot esculenta*), when coupled with low population densities and ample supplies of fish and game, supported the Indian population adequately. Not until the early twentieth century did it become apparent that changes might be in order. During this time rubber collectors began recruiting Indians to tap the rubber trees and to incorporate them - or at least their labor - into the world economic system. At this time when the population began to increase, new demands were placed on the forest ecosystem to provide food. The introduction of firearms accelerated the destruction of much

Fig. 20--Cubeo House. The Indians surround their houses with useful food plants.

Fig. 21--Raised Garden. To protect vegetables from ants an old canoe has been converted to a raised garden. Tin shields on the supports are further protection.

wildlife while the removal of many of the men to work in the rubber industry placed greater demands on those who remained to produce food. Since this time there have been sporadic and uncoordinated attempts to alter cropping patterns but basically agriculture remains much as it was during the nineteenth century.

The agriculture practiced is the usual slash and burn carried on by natives in both the American and Asian tropics. Fields are "cleared" by cutting the smaller trees and girdling the larger ones to kill them. This cutting is usually completed during February when precipitation drops. Burning is accomplished late in the month with planting following immediately to take advantage of the nutrients in the ashes before they are leached out.

The most important food crop is yuca and in its many forms it is the staple food in the regional diet. Planted from cuttings, it is easy to transfer and does well in a variety of soils. In six months the roots are large enough to be dug and made into cassava bread. Because of the presence in the root of a cyanide poison, it must be ground and the juice pressed out before it is cooked and eaten. Any poison remaining after the processing is neutralized by the heat of the fire.

If farina is to be made, usually older roots are selected which, after being ground and pressed to remove the poison, are roasted on a flat griddle or tiesto. Properly roasted

Fig. 22--Burned Field. This field was not dry enough to burn cleanly. The remaining wood is often sold in town for firewood.

Fig. 23--Yuca Garden. Yuca grows well in even poor soils often growing to heights of more than five feet.

farina will keep almost indefinitely without spoiling and is often used as "trail food" while on trips. Some is also used as the basis for the manufacture of the mildly alcoholic drink, chicha.

Other crops found in most gardens are pupuña (Guilielma speciosa), peppers, pineapples, sugar cane (for eating only), and onions. Around the houses are often found citrus trees, caimarones (Pourouma cecropiaefolia), and bananas for both cooking and eating.

The lack of fertility in the soils requires that garden plots be moved frequently. Four or five years is the maximum farming time for most yuca fields and some are not productive longer than one or two years. This rapid turnover necessitates large areas of vacant land in the agricultural cycle. Ideally, land would remain under natural vegetation for twenty or thirty years to renew its fertility before being cleared again. Such a system may require a total of fifteen hectares of land to support each person living there.[48] Many Indian gardens are now half an hour's walk from the home because all adjacent virgin or fertile land has been cut over, farmed out, and is now in second growth fallow.

The Caja Agraria stocks fertilizer and some of the farmers are aware of an alternative to shifting their fields, but until they are able to sell more products for cash they cannot afford it. The situation may well change

in the future but currently the labor to clear new fields is cheaper than fertilizer.

The major insect problem is with the leaf cutter ants (Atta sp.) which are found throughout the region. They are especially damaging to vegetables and citrus. It is not uncommon to see trails of ants two or three inches wide leading from gardens to ant mounds. Each ant going to the nest carries a half inch square piece of leaf over his head. In order to thwart them, favored plants are often grown on raised platforms with tin shields around the supporting legs. Commercial poisons are available, but like fertilizer they are beyond the means of most planters. It is doubtful that the efforts of any one farmer would be successful when there is so much unused land available for their nesting and foraging.

It has often been stated that the greatest handicap to improving tropical agriculture is the wealth of the forest resources. A small increase in the price of rubber or another natural product is sufficient to draw labor away from agriculture, and fields abandoned for even a short time are often beyond reclaiming.[49] Weeds can quickly take over a cleared plot of ground if they are not held in check. In fact, competition from fast growing weeds and shrubs and the rapid build up of insect and rodent populations, are often as big a factor in field abandonment as loss of fertility.

With the decline in rubber production currently taking place, one might argue that the population and food requirements will revert to the former conditions and that traditional agriculture will again suffice to supply the needs of the populace. This is not likely to occur. The *blancos* who have moved there are not leaving, indeed the Colombian government would go to great lengths to encourage them to stay, and the Indians will never rebuild their society as it was before they became enmeshed in a monied economy.

Due to the lack of alternatives it is apparent that agriculture in one form or another is going to be called upon to support more and more people at a higher level of living than they have yet enjoyed. The problem is to choose the best direction for agriculture to move and the means to facilitate this growth.

In many remote areas of the world, livestock production has served as the forerunner of more intensive land uses. With Mitú located only one degree north of the equator, there is an ample amount of solar energy to stimulate lush pasture growth. A well distributed annual rainfall of over 130 inches is adequate for good vegetative growth even in this area of high evaporation. While native grasses are not nutritious, imported varieties have been planted and have done well.[50] This, coupled with a twenty year history of cattle in the town,[51] should have encouraged grazing.

That this has not occurred is evidence that there are other elements to be considered. Amazon pastures do not remain "cleared" without a great deal of effort to prevent the return of brush and other woody plants. Periodic burning can help but supplemental clearing by hand is often required, a costly undertaking even in an area of cheap labor. Former pasture lands near the internado have now reverted to a dense growth of brush that is useless for grazing. Even the comisaria's pasture on the left bank of the Vaupés is being reclaimed by the forest in spite of periodic burning.

Another factor retarding the grazing industry is the quality of breeding stock available. The "native" criollo cows have been crossed with Brown Swiss to produce an improved breed. Although these hybrids are capable of producing quantities of rich milk, they are not milked, and the udders of even those with calves are extremely small. A more suitable breed for the Vaupés would perhaps be the Zebu, or a combination of Zebu with the native stock. Such an animal would be hardier and would produce more of the meat which is in such short supply. Although the Brown Swiss mixture can produce more milk than the Zebu, there is little local demand for fresh dairy products. Many people consider milk as only a baby food and not something that adults would drink.

While the pasturelands do have the capability of

producing a large supply of low quality livestock,[52] problems of climate, disease, and particularly transportation are such that the Vaupés as well as most areas of tropical rainforest will be unable to develop until there is a shortage of more suitable land. Large areas of the llanos to the north are covered with natural grasses and need not be cleared. They are also much closer to population centers where demand is greater. Access to land transportation is an additional advantage. Those wishing to engage in cattle production in the Mitú area must realize that for the present their only market will be local. Any extension of the industry beyond meeting the local demand can only cause further problems. In view of these problems and the proximity - by air - of the grazing lands around San José del Guaviare, agricultural development channeled in other directions would probably be more important economically.

Cattle have been "successfully" introduced in the Leticia area under similar environmental conditions and are supplementing rubber as a source of income.[53] The situation on the Amazon is somewhat different from that along the Vaupés due to the greater volume of traffic and tourists passing through and also to the greater distance from any natural grassland.

The raising of domesticated livestock other than cattle has not been any more successful. Although in 1852 Spruce

reported seeing sheep belonging to Indians at São Gabriel, on the Río Negro, they apparently have failed to survive.[54] A few pigs are also raised in forested areas where they can forage for food to supplement the maize or yuca fed them. Smaller animals include chickens, ducks and turkeys. Although raised chiefly by the Indians, they add almost nothing to their diet but are sold or traded to the blancos. The Indian refuses to eat these animals which he has raised but is willing to sell them to the whites who do eat them.

The poultry kept by the blancos in town is allowed to roam freely to reduce the amount of feed required. (Much of the corn fed arrives by airplane). Because they are not penned, eggs are laid under buildings or in hidden places where they are difficult to locate. One woman was overjoyed to locate a nest containing fourteen eggs. A short time later she was seen at the edge of the river sadly throwing the rotten eggs away. This experience precipitated a major attempt to catch and pen the birds but after several days of intermittent and unsuccessful efforts, they were again permitted to go where they wished and the daily search for eggs was resumed.

The limited local demand and the high costs of transportation to reach major markets have led to the introduction of many new crops which might stand the high shipping costs. The most successful of these "imported" crops has been maize. It is successful in the sense that it is

now widely cultivated but it has not added any wealth to the area through shipments of a surplus to other parts of Colombia. On the contrary, some corn is flown in to provide animal feed, although it could be locally grown almost anywhere. This is in part due to the relatively low night time temperatures which reduce yields,[55] and also to the less fertile soils of the Amazon Basin. The situation with regard to corn is representative of many introduced crops: they can be grown but the problems of soil fertility, of insect infestation, and of rapid weed growth are such that farmers in the llanos can produce them cheaply enough to pay air freight charges to Mitú and still sell them at competitive prices.

Other suggested crops which have been recommended and introduced on a smaller scale include sugar cane, castor beans, rice, fique, mangos, sweet potatoes, tomatoes and various oil palms. All are grown in some quantities but various problems are encountered. Rice sprouts and grows well initially but often dies back before the grain is formed. Cane grows and matures but the sugar does not crystallize. All of these vegetable crops are of course subject to the industrious efforts of the leaf cutter ants. Some crops encounter few problems but like corn provide yields too low to compete with crops grown in agricultural areas with more productive soils.

A more realistic method of increasing the value of

agriculture is to stimulate and provide markets for native crops rather than to bring in new ones.

The most widely grown and best known of these native crops is yuca. It is already a commercial crop in that many Indian women contribute to the family earnings by converting it into fariña. Fariña, a ground and toasted form of bitter yuca, first became an important food when large numbers of Indians were brought together in work camps to collect rubber. It filled the requirement of a food which was familiar to the workers, had no storage problems, and could be cheaply produced in the area. Although it has little food value it is filling when supplemented by other food. When there is no other food, fariña is often consumed with quantities of water. The fariña absorbs the water in the stomach and swells to provide a "full feeling" even though very little has actually been consumed.

Current research indicates that this type of bitter yuca is capable of producing ten tons of starch per hectare. For comparison, corn produces only three and a half tons per hectare.[56] Both commerical starch and tapioca could thus be produced from yuca. Here again the problem of transportation becomes important. Because of the high moisture content of this product, it is not economically feasible to ship out unprocessed roots. At the same time, it would not be possible to fly in the equipment required to permit local processing of the starch. Thus

the industry is ruled out on the basis of economics before going beyond the planning stage.

The lack of land transportation also rules out other forest products from the Vaupés. Several varieties of trees are quick maturing and yield wood suitable for either furniture or pulpwood. Guarumo (Cecropia sp.), which quickly appears in fields which have been abandoned, is suitable for processing into newsprint. In 1964 forty thousand tons of newsprint were imported into Colombia at a cost of sixty million pesos.[57] Certainly much of this newsprint could be produced in the country but just as certainly it must be produced in regions with reliable, cheap transportation. Mitú and the Vaupés are thus eliminated from consideration.

One crop which does seem to have potential for development is cacao (Theobroma cacao). Plantings made by the Jesuits during the eighteenth century have survived without care and are still producing. Seeds from the original planting have been spread by birds and animals until there are now an estimated 50,000 hectares of cacao.[58] Annual production from this acreage is only 100 tons but it does indicate a possibility for expanded production. In 1964 Colombia imported 10,000 tons of cacao which cost fifty-five million pesos.[59] Domestic production could be expanded drastically without developing export markets. Any plant which can propagate itself for two centuries is

climatically well adapted to the environment and, given some protection from competition and insects, should yield much greater harvests. Although this tree is slow to mature and bear fruit, the government should be willing to subsidize growers for a few years in order to improve the economy of an area which has failed for seventy years to develop its agriculture.

Dr. Richard E. Schultes, a Harvard Botanist, has spent many years studying the vegetative resources of the Amazon Basin and has suggested several crops that might be expanded and exploited in the Vaupés.[60] The plants which he feels could be converted to money crops are basically all native to the area and are familiar to its residents. Much of his report dealt with rubber, which will be considered separately, but several other crops were also recommended.

Among these was barbasco (Lonchocarpus utilis, and L. nicou) which is used by the Indians to poison ponds in order to collect the fish. It contains rotenone which is widely used in the United States to kill "rough fish", and it is also included in many insecticides. Varieties developed in Peru contain a high percentage of rotenone in the roots and mature quickly, so they can be harvested after three years.

Fibrous crops could be yute (Corchorus capsularis), abaca (Musa textiles), and chiquichiqui (Leopoldinia piassaba).

The coconut (Cocos nucifera) and babassu (Orbignya barbasiana) could be utilized to produce oils. All of these plants are either native to the Amazon Basin or well suited to be grown there. Although they are not extremely high value crops they could be valuable supplements to the income from rubber. In an effort to introduce slow maturing crops such as this in the Caquetá area, Incora (Instituto Colombiano de la Reforma Agraria) has planted and is caring for large groves of coconuts and babassu. When they are old enough to begin bearing they are turned over to settlers. In this way farmers who lack the inclination or the funds to care for trees during the non-bearing years are relieved of this burden.[61] A similar plan should be as successful in the Hitú area. For many years comprehensive plans have been available for the improvement of agriculture in the tropics in general and more specifically for the Amazon Basin of Colombia.[62]

While varying in detail, all of these programs have outlined similar steps which must be taken before agriculture can form the basis of an expanding economy rather than merely providing subsistence for a limited number of people. Of paramount importance is an expanded system of extension services including experimental and demonstration farms.

Commenting on this aspect, Wickizer says:

> Part of the process of educating the tropical worker in agriculture must be government sponsored extension work. The dissemination

> of knowledge about crops and their requirements, and about the best cultural techniques of production under the given environmental circumstances, presupposes that experiments have been made that demonstrate the merits of the procedures advocated. Research which only governments are in position to finance and conduct is a prerequisite to any broad extension programme. All this costs money and calls for highly qualified personnel.[63]

He also quotes W. A. Lewis:

> The secret of rapid agricultural progress in the under-developed countries is to be found much more in agricultural extension, in fertilizers, in new seeds, in pesticides and in water supplies than in altering the size of the farm, in introducing machinery or in getting rid of middlemen in the marketing process.[64]

In this respect little has been accomplished in the Vaupés. In the past an experimental farm was operated on the left bank of the river opposite the town but it has now been abandoned and the land incorporated into the deteriorating pasture. It was apparently a casualty of the changing administration. The comisarios, who are the chief administrative officers, appointed by the Colombian president, often have very short tenure. With the changes in administration, there are often revisions in the major programs being emphasized. Such changes are especially regrettable in an area where there is little confidence in government officials and where the environment poses difficult problems for the farmers. What is needed is an experimental farm operating under a long range program

which over a period of years would show greatly improved yields and could engender some confidence in the advice of extension workers. The colonist in the Amazon Basin often has no one to advise him or to provide him with seeds. Dependent on the Indians for both techniques and seeds, he often plants varieties which have been used for centuries and makes no attempt to improve them.[65]

In this situation it is also important that the agronomists convince not only the farmers of the worth of their advice, but also the public employees and all the other residents, of the value of agriculture.[66] Among the blancos living in the Amazon Basin there is a rather scornful attitude toward farm work. Collier noted this attitude in Manaus during the early rubber boom when he wrote, "Geared to a merchants boom or bust economy, which disdained the soil and manual labor, the people showed a characteristic scorn of local produce . . . no truck farmer could stay long in business. Manaus preferred its potatoes from Portugal, its cauliflowers shipped in brine all the way from Brussels."[67]

During the 1930's when Earl Parker Hanson traveled through the Orinoco and Río Negro Basins he encountered the same feeling. When he passed through an area almost devoid of food or agriculture he asked why they did not plant crops. The reply was, "Senhor, Indians raise their own food. We are neglected here but we are not Indians."[68]

A short time later the same question put to another man elicited this response: "Senhor, we are businessmen, not farmers."[69]

Marcos Fulop visited Mitú and the Vaupés in 1953 and after commenting on the small amount of food available there wrote: ". . . the cauchero has not come to the Vaupés to work in agriculture but to exploit the rubber and make his fortune."[70]

In 1969 the attitude was essentially the same. In spite of widespread recognition that the rubber industry was failing, the corregidor could say that the local people did not have time for agriculture because they were too busy collecting rubber. He showed no concern over the need to fly in virtually all food.[71]

Such general feelings make the valorization of agriculture extremely difficult. There have been sporadic efforts by governmental agencies to improve agricultural production and some of the missionaries have also been instrumental in supplying seeds and cuttings to introduce new crops. To date, none of these efforts has been very successful. The Instituto Colombiano de Reforma Agraria has plans to grant farmers long term low interest loans to finance their operations, and to sell land at only one-tenth its assessed evaluation. These inducements have not been sufficient to lure any number of farmers to Mitú. Settlements are being made in the northwestern part of

the comisaria (from San José del Guaviare to Calamar); however, at Mitú the combination of physical problems, and cultural attitudes, and above all, the difficulties of transportation have been such that little progress has been made.

Planes readily overcome distance, as the numerous flights to isolated places all over Colombia prove every day. Roads overcome space and play a most important role of incorporating a region into the body politic and economic. The farmer begins to think in terms of growing a surplus when he has a market for it and can transport it to that market at a profit. Once the transportation problem is solved, the tasks of government sponsored extension workers, the introduction of schools and public health measures, the changing of cultural attitudes, and so on, will be much easier.

Housing

The primary function of any dwelling is to provide shelter against the elements.[72] After this initial requirement has been met, comfort and efficiency are considered, usually in the context of the cultural background.[73]

In Mitú, the protection required is basically against the sun and the heavy rains. This need can be met by erecting upright poles to support a metal or thatch roof. The walls may be completely omitted from this building.

There are several shelters constructed in this manner but they are largely used by transients or by families who spend only a part of the year in town and then return to other homes in the forest.

Diurnal temperature changes and occasional strong winds also make walls of some kind desirable although they are not an absolute requirement. This additional degree of protection is achieved in various ways, generally in accordance with the differing cultures of the builders.

As might be expected, most of the houses in town are constructed following the Latin American custom of "closing out the world." The outside walls are often nearly solid, and fences of flattened barrels or other materials also provide privacy. In contrast to this outward appearance, the interiors are often open and airy with every room fronting on the patio.

The Indians achieve privacy not so much through their buildings as from their cultural system which does not allow them to see anything that they should not see. The system was developed for living in the maloca and has been carried over to the individual homes most now live in.

The original Indian home in this area was the large communal maloca which housed the extended family making up each tribal group. They were built in a rectangular shape forty or fifty feet wide. The length was dependent on the number of families in the group living in it. Spruce

Fig. 24--An "Open House." A roof to protect hammocks from the sun and rain is sufficient for temporary housing.

Fig. 25--Thatched House. A raised thatch house which is currently vacant was ignored in favor of the open shelter above.

mentioned seeing the remains of one maloca at Yavaraté that was seventy-six by one hundred and fifteen feet.[74] Besides forming the basic housing unit, the maloca was also the ceremonial center of the Indian culture. Individual living spaces for each family group were ranged down the sides with the middle aisle left clear for dances or other ceremonies involving the entire group.

The roofs were thatched with palm fronds and the walls were covered with a thinner layer of palm leaves, often woven into panels before being attached. The lack of windows made them rather dark but this darkness provided some relief from the insects that were often a problem.[75] In recent years this same lack of ventilation and light has been cited by missionaries as contributing to the Indians' health problems. No studies have been conducted to determine the validity of this claim.

Those Indians in the vicinity of Mitú or among whom the missionaries are working have begun to switch from the communal to the individual, single family dwelling. The change is attributed by some to the desire of the missionaries to eliminate any building that might be large enough to accommodate the ceremonial dances and celebrations which were so important in the native religions. Undoubtedly the disappearance of the malocas has decreased competition from these pagan festivals and made missionary work easier but the missionaries are not solely responsible for this change. In some areas virtually untouched by missionary

efforts, the malocas were abandoned many years ago. The change may have simply been the result of encountering people who lived in individual homes, a concept new to their culture but one which was acceptable to them.

Only one maloca remains in the immediate area of Mitú and it was sponsored and financed by the Colombian Indian Institute. The contruction of one of these large buildings requires a great deal of material and labor. They are being replaced by smaller homes that can be quickly constructed by one or two men. The building materials are basically the same but the change in scale greatly facilitates contruction.

> In the humid tropics, the major heat burden on man, aside from solar radiation, comes from the high vapor pressure, rather than from a high temperature of the ambient air; hence the greatest need in causing heat loss from the body is air movement. Serious consideration must be given, therefore, to providing free openings in the walls facing the prevailing breeze and also in the opposite walls, so that thorough ventilation can be secured.[77]

Certainly none of the residents of Mitú has had access to the previous quotation but they are aware of the principles involved. The wall-less shelter presents the least barrier to wind movement but even those with impervious walls of concrete block or bricks are well supplied with windows. Most have no screening or glass so that when the shutters are opened there is nothing to restrict air flow.

The "better" houses are constructed of these heavier, more expensive materials but others are still built of

Fig. 26--An Indian Town House. An Indian house in Mitú is very well kept. Flowers have been planted and the yard is swept daily.

Fig. 27--Indian Maloca. A traditional Indian maloca has been constructed by the Indian Institute but small individual homes are also under construction.

native materials with only a small amount of sawed lumber.

Amongst the Indians this cut lumber has become very popular. At Yavaraté an entire village moved from the Brazilian to the Colombian side of the Vaupés River in order to be closer to the small sawmill operated by a team from the Summer Institute of Linguistics. It might be termed a fortuitous coincidence in that the Brazilian government had previously refused permission for the team to work on the other side of the river.

For several years the comissaria operated a small sawmill on the left bank of the river to provide building materials. Logs were floated down the river and converted into lumber. In 1967 the engine providing the power broke down and replacement parts were not available. From 1967 until April, 1970 it remained idle. At that time efforts were begun to repair both the building and engine.

The only source of sawed lumber in Mitú was a small mill at the Internado. Although constructed primarily to supply building materials for the church and school, it was also available for custom work for private individuals.

While the town is surrounded with trees that could be converted to lumber of varying qualities, the high cost of sawing them leads to many houses being contructed of poles. If the old sawmill can be repaired and reactivated, the price of lumber should drop and this situation be alleviated.

Many Indian houses in town are of a wattle type. The

walls consist of upright poles four or five inches in diameter to which bamboo strips are attached on both the inside and outside. Soft clay is then pressed into the opening where it dries to form the wall. Often clay is spread on the outside of the bamboo strips to give a more finished appearance. The walls are protected from rainfall by the steep roofs which have broad overhangs and extend down close to the ground.

Floors are of either dirt or wood. Dirt floors involve no cost but are damp and more likely to cause health or insect problems. They are found mostly in the older houses or the poorer homes. Wooden floors offer several advantages. They are drier and cooler than dirt and also easier to clean, with less insect problems.[78] Besides the additional cost, wooden floors are subject to the effects of the termites which are very active in this climate. Floors not separated from the ground by a material impervious to termites may be quickly destroyed. This is especially true of the area around kitchens or showers where additional moisture is present.

High levels of rainfall require dependable roofing materials. The thatch roof developed for the maloca was satisfactory because by the time it had deteriorated, land fertility had dropped requiring a move to a new site. The permanent homes now being built require a roof with a longer life. The material best meeting this need is the

corrugated tin or zinc coated roof. It is light enough to be flown in, resists rust, and can be easily and quickly nailed to the roof supports. In addition to its ability to resist the rain, the shiny surface reflects a high percentage of the sun's heat and contributes to lowering inside temperatures. Aluminum sheets would be even better but they are too expensive.

Some government buildings have been roofed with eternit, a manufactured product which is molded into corrugated panels resembling the tin. It has two properties which restrict its use: it is much heavier than tin sheets of the same size and it is more easily broken. Such semi-absorptive materials permit a measure of cooling by evaporation of water from the surface after rains end but this advantage is negated somewhat by the higher levels of heat absorbed rather than reflected.[79]

Some of the clay in this area is suitable for conversion into low quality bricks and two kilns have been built to fire them. The larger operation employed fifteen workers in digging, mixing, and molding the clay. Ovens large enough to bake thousands of bricks at a time were constructed and quantities of wood were cut to provide fuel. It was, in fact, such a large operation that the supply of bricks was soon greater than the building trade required. The price ($750 per 1,000) did not drop sufficiently to stimulate any new demand and the plant was soon out of

business. Thousands of finished bricks that could not be sold remain near the kiln and are being further baked by the equatorial sun.

The smaller kiln is owned by the Church and is still active. Its operation is very similar to that of the larger one except that instead of men, donkeys walk about in a pit to mix the materials. The kilns are, of course, fired with wood and the quality of the bricks from both plants is very similar. This plant also had a large supply of finished bricks on hand.

In addition to the high cost of the bricks, mortar must be flown in and the labor to lay the brick is also expensive. While most laborers are paid $20 - 25 per day, bricklayers earn $60. The only brick building under construction during the period of the field work was a store which might be able to pass on the cost to its customers. Total building costs are too high for residences.

The school buildings and other government buildings were constructed of concrete blocks which were very expensive. One writer has complained that such a poor comisaria should never have invested so much money in this type of construction while there is good cheap wood available nearby.[80]

Although transportation costs for cement and mortar make concrete block buildings very expensive, there is no

doubt that in such a humid climate such structures will last much longer than if contructed of wood. The investment in longer lasting buildings may prove to be a good one.

While there is a wide range of housing types and construction materials in the town, they are well suited to the environment and completely adequate against the elements. Homes usually reflect the Indian or Spanish culture of the occupant but these cultural tastes and desires have been modified to fit the local situation.

Food

The food supply in Mitú is derived from four sources: fishing, hunting, local agriculture, and the airplane. The first two sources supply a small amount of food but do contribute much needed protein to diets that are predominantly starches. The supply of large fish in the Vaupés has been almost completely exhausted by many years of intensive fishing. A few large fish (four feet or longer) remain in the river but most have already been taken. The many falls in the course of the river make it difficult for fish to move from other areas to the fished out portions. Contrary to Builes report that the "sandy bottom and lack of food"[81] were responsible for the dearth of fish, older residents stated that in the 1930's there were many large fish in the river and they were readily caught. The use of barbasco to poison fish was undoubtedly in part responsible for eliminating many of the fish.

This practice, although now illegal, is still carried on by some of the Indians, but mainly in the tributaries or in isolated ponds along the Vaupés, since the main river is too large to poison. The use of the river by flying boats and the resultant oil and gas pollution may also have been a factor. The large number of outboard motors currently operating in the river also contribute to the pollution.

Whatever the principal cause, the number of fish is not great and those that are caught are rarely longer than ten or twelve inches. While the flavor is excellent, the number of extremely small bones renders them almost literally inedible. Many townspeople spend hours each morning and evening fishing from the bank or from a dugout canoe. Only one young boy made catches with any regularity and he spent more time fishing than anyone else. His success may have been more the result of perserverance than skill.

Some of the Indians also attempt to catch fish with hooks and lines but most of the catch taken is from traps. As water levels begin to drop, the traps are placed across the smaller creeks or rivers. The "trap" consists of a slatted barrier which funnels the fish into a small area where they can be scooped out. Some are large enough to be broiled but the majority are small (three or four inches). They are often smoked over a low fire to preserve

them, and when there is a surplus it may be taken to town for sale. The smoking process is not thorough but rarely is there more than enough for a few days and they will keep that long.

"Fishing" with barbasco (Lonchocarpus nicou) is even more rewarding as far as the size of the catch is concerned but it can only be done at the risk of going to jail. The federal government has forbidden the use of such poisons in an attempt to preserve some of the fish which still remain. During periods of low water it is sometimes used but generally with a degree of secrecy.

Those who are involved must collect the poison, crush it, and dump it in the water. As the fish are effected by the poison, they float to the surface where they are collected or a net may be placed across the lower part of the pool and the fish are collected as they float into it. The use of barbasco is a long standing practice among the Indians and the action to restrict its use is incomprehensible to them.

One of the strongest arguments against barbasco is its effect on the very small, young fish. If not removed from the water many of the larger fish soon recover and swim away. The small fish are more susceptible and generally die whether they are netted or not. Thus many fish are lost before they are large enough to provide any amount of food and the breeding stock for future years is destroyed.

Hunting is much less widely practiced than fishing. In past years the males often spent most of their time hunting but currently they hunt little unless game has been sighted and the chances of success appear good. The more common game includes the paca (Cuniculas paca virgata), various birds and monkeys. Less numerous but highly popular is the deer (Mazama gouazoubira murelia), the danta or tapir (Tapirus terrestris), and the wild pig (Tayassu pecari).

Reichel-Dolmatoff has described the typical bag of an Indian hunter in the Vaupés in these terms: if he hunts two or three days per week, he might expect to take one rodent, an armadillo and a bird. Each month he might also kill three or four guinea pigs, two pacas, and a monkey; every two months a deer or wild pig and once each year a danta.[82] He was writing specifically of Indians on the Río Papurí to the south of Mitú and in an area less heavily settled. The Indians around Mitú are not this successful, and the blancos have even less luck in hunting.

In the past all game was killed with the blowgun and a poisoned dart or with a bow and arrow. The influx of rubber buyers in World War II quickly changed these practices. By working in rubber the Indian was able to earn enough money to buy a shotgun and to kill more game. A few of the blancos own rifles but many Indians own shotguns. They are usually very simple, single shot

models but are certainly sufficient for this type of hunting.

The gathering of ants, caterpillars and other insects is not often considered hunting but such insects do add protein to the diet. Thousands of mature female ants emerge from the nests each year and fly off to start new colonies. In 1970 they came out on Palm Sunday and it was truly a holiday with both Indians and blancos eagerly searching for holes and scooping the ants into cans or other containers. Many were eaten raw while others were saved for cooking later. An interesting cultural element which became obvious at this time was that most of the blancos ate only the abdomen while the Indians ate only the heads. A few members of each group ate the entire insect but most did not.

The ant is such a delicacy that Indians will sometimes build their houses over a nest in order to catch most of the young queens when they emerge each year.

Caterpillars are also collected periodically in areas where they are numerous. The trip to gather them often involves several days travel; an indication of their value to the diet.

Commercial agriculture in the normal sense hardly exists in the Mitú area. The production of farińa from yuca is an exception however. This is about to undergo a period of rapid transition. In 1970 there were already

two mechanical grinders in operation replacing the laborious method of grinding by hand on a large board set with sharp stones. In 10 minutes one of these gasoline powered grinders can process a 60 pound basket of roots that would require hours of hand labor. These machines will force many of the women out of the farina trade by increasing production and lowering the prices.

Some measure of the importance of this food may be seen in the fact that it constitutes the primary food of the rubber collector - both from the standpoint of volume consumed and total expense. The daily amount estimated to be consumed by each worker was 1.5 kilos, far more than any other food.[83]

Other locally produced foods include pupuña (Guilielma speciosa), which maybe eaten boiled, but more often is grated to produce a meal or mixed with water to make a drink, and several types of bananas for eating and cooking. Pineapples and coconuts are also becoming more popular and widespread.

Aside from yuca in its various forms, and bananas and plantains, it is the sky not the soil which "produces" most food. Planes arrive almost daily from Villavicencio or Bogotá and virtually all bring food. Much of the food is grown around Bogotá or on the llanos to the east of Villavicencio, but some of it is picked up at San José del Guaviare on the edge of the selva. San José, in fact,

exports as much food to the Vaupés as it does to the interior, more densely populated parts of the country.[4]

A description of the food brought in by one plane may serve to illustrate the types of food which must be imported. It is not truly representative as to volume of goods handled but rather for the variety. Included in the cargo was 600 pounds of sugar, 1,050 pounds of potatoes, 1,250 pounds of flour (in CARE sacks), one sack of corn, eggs, and tomatoes.

Other foods brought in quite often were rice, powdered milk, vegetables and fresh fish. Meat was sometimes flown in but usually arrived in an even fresher form, on the hoof. Both steers and pigs were flown in live and butchered as needed. The lack of refrigeration makes this system very practical. When an animal is butchered the news spreads quickly and all who wish to buy hurry to make their choice of cuts.

Word of food spreads so quickly that one shipment of 12 dozen eggs was completely sold in two hours, although most sales were only for a few eggs.

The high transport costs result in food prices much higher than in other parts of the country. While clean rice sealed in plastic bags sold in Bogotá for $5.70 per kilo, bulk rice was selling in Mitú for $7.00 a kilo. Other prices were also high; meat $18.00 a kilo, a can of condensed milk $15.00, and a 340 gram jar of jam for

$8.00. The high price of meat leads to rather small servings in the local hotel. On one occasion when there was no fresh meat, two small cans of spam provided the main course for 12 lunches. While lacking in protein, there was plenty of bulk, with large servings of rice and plantains.

Most meals in the hotel consisted of a thin vegetable soup, rice, yuca, beans, plantains, and a small serving of meat or fish. This was supplemented with a liberal sprinkling of farina. When eggs were available they were often served in place of meat.

The few Indian meals observed included more protein - in the form of fish - but also much starch. The quantities consumed were truly astounding. Even young children ate more than the average American adult would. These meals could not be considered typical because they were noted during a semi-annual conference when the resources of the group were being pooled for communal meals. A productive fish trap supplied much food that would not normally have been available to the entire group.

Several weeks' observations of meals in Mitú indicate that the principal elements missing are vegetables and meat or other sources of protein. That they are lacking is in large part due to leaf cutter ants and transportation difficulties, respectively. The supply of rice, beans, yuca, bananas, and other tropical crops was generally adequate. A well ripened plantain or a chicken wing or

even leg can hardly replace a filet, and the general quality of the diet may be questioned but few people are actually suffering from physical hunger. To improve the diet will require both educational and agricultural development. These efforts must extend to both the Indian and *blanco* cultures. While the Indian diet may include more proteins, it is lacking in the vitamins that fresh vegetables could provide. Only through joint and effective action can these problems be alleviated.

Health

The only general statement regarding the state of health of the people of this area is that it is poor. The major problem of the whites is poor diet while the Indians suffer from both dietary deficiencies and diseases to which they have little or no natural resistance. Conditions have worsened considerable for the Indians since Earl P. Hanson wrote in 1933, "An unhealthy Indian in the Amazon Basin is as rare as a healthy white."[85] The health of the whites has not markedly improved and that of the Indians has certainly declined.

While many of the elements lacking in the diet of the whites could be grown, their attitude precludes the adoption of agriculture. Hanson was told that, "Indians raise their own food. We are neglected here but we are not Indians."[86] Almost forty years later when the *Corregidor* of Mitú was asked why there was no more effort to produce their own food he replied, "We have no time for agriculture,

we are rubber empresarios."[87]

The principal element missing from the diet of both whites and Indians is protein matter. There are few large fish or game animals left in the area due to long occupance, and thus far there have been no major efforts to introduce new vegetable sources of protein.[88] In this respect the Indians who live farther from town often fare better due to less population pressure which has permitted an adequate supplies of both fish and game to survive.[89]

Among the major health problems of the Vaupés are malaria, tuberculosis, internal parasites, and malnutrition. Other diseases which are serious but somewhat less prevalent are measles, smallpox, and the flu. Measles were responsible for fifty deaths in a 1943-44 epidemic[90] and several more in 1957.[91] They are still greatly feared by isolated Indians who do not want any of their group to visit areas where measles may be present.[92] Smallpox is less common but has been the cause of numerous deaths in the past.[93] Flu continues as a problem with the last major epidemic reported in 1964.[94] Virtually all of these diseases were imported to the Vaupés in recent years by whites, and the Indians lack the generations of exposure which have helped provide some immunity or resistance among people where they are endemic.

Malaria is not prevalent in the immediate vicinity

of Mitú, but continues to afflict people living up river and in some of the outlying districts. A United Nations - Colombian sponsored team carries on a program of spraying around houses each six months which has helped decrease the number of mosquitos but has by no means eliminated them. Many residents of Mitú continue to sleep under nets as a precaution against infection.

Tuberculosis is a major cause of death among the Indians, with its effects perhaps compounded by poor nutrition and parasites. One study reported in 1964 that 85 per cent of the Indians checked by the Ministry of Health had tuberculosis.[95] In 1969 the resident doctor in Mitú estimated the incidence at 90 per cent[96] while the local priest felt 85 per cent was still about right.[97] Regardless of the actual figure accepted as valid, it is obvious that tuberculosis is a major health problem.

The first hospital in Mitú was built by the United States Rubber Development Corporation during World War II and only in 1964 was it replaced by a more permanent concrete and brick hospital built by the Colombian government. This hospital is normally staffed by two nurses, one dentist and one doctor. The nurses tend to stay on because of the higher incentive pay they receive. The doctors and dentists usually stay only a year or so for experience and then return to the large cities where opportunities are greater. All treatment, medicine, etc. in the hospital

are free but there is no rush of people to be admitted. Many feel, more or less correctly, that it is a place to go to die. Food is poor and drugs and medicines are sometimes not available. Although there is an operating room, there is no X-ray unit and no laboratory facilities, which greatly hinders proper treatment in many cases.

In 1969 the resident doctor stated that most of his patients (95 per cent) were Indians from out of town. By far the most common problem reported was internal parasites of the ascaris type. They are almost universal among the population.[98] Because of the lack of sewage facilities those who are treated are almost immediately reinfested and the cycle continues. One Indian woman was brought to the hospital with a large lump on her lower abdomen that was thought to be a cancerous tumor. An examination of the lump proved it to be only a large mass of parasites that had located themselves at one spot and closed off the intestine. Medicine was administered and the "lump" disappeared and the woman was able to rejoin the family that had given her up as being beyond help.

Another very prevalent problem is caused by the amoeba in the river, the result of both the internado and the town dumping raw sewage into it. The river water was described as being almost "pure amoeba."[99] As long as this continues all the doctors can do is treat the most severely ill while others will constantly be infected.

While the hospital in Mitú is listed as having fifteen beds available, during the period of the field work for this paper there were never more than three or four patients there. Indeed several of the beds had not been assembled but were lying on the floor. During the office hours for out-patients there were always people waiting to be treated but they were very hesitant about remaining in the hospital.

One of the usual suggestions for improving health standards in isolated areas is the use of traveling teams of doctors. This has been suggested for the Vaupés[100] but due to lack of money and shortage of personnel the program has not been implemented. The doctors do make an effort to attend the semi-annual conferences of the protestant Indians and dispense free medicine to any who are ill, but the Indians have little understanding of the white man's medicine and if the problem is not solved by the first dose, they may just stop administering the medicine. In the same vein, patients are often taken to the doctor only once and if the cure is not complete, they may not return at all.

The Guzman report of 1964 had recommended that three doctors and two dentists be assigned to each of the new hospitals in Mitú, Miraflores, and San José. While population in the area has continued to increase at a rapid rate, not even this number of doctors and dentists have

been made available. The following table shows the personnel actually assigned in November, 1969.

TABLE 5.--Medical Personnel and Facilities In The [illegible]'s, November, 1969.

Facility	Doctors	Dentists	Nurses	Beds
Hospitals				
Mitú*	2	1	2	15
Miraflores	1	1	1	15
San José	1	1	1	15
Stations				
Montfort	0	0	0	0
Caruru	0	0	1	0
Caño Grande	0	0	1	0

*By March, 1970 there was only one doctor at Mitú while the dentist had left and had not been replaced.

[a]Data from Dr. Paz, Resident Doctor, Interview in Mitú, November 21, 1969.

The whites who live in town have somewhat different health problems but are not very healthy. They suffer from amoebic infections due to the water supply and also often have less balanced diets than the Indians due to their efforts to trade for food rather than to produce their own.[101] There is also a great tendency to drink too much when both money and liquor are available. One Colombian observer has likened this attitude to that of miners and sailors who are isolated from society for long periods of time and on their return attempt to "catch up in one day for all the drinking they have missed."[102] Certainly beer, and to a lesser extent, aguardiente, are major items

Fig. 28--House Call. A male nurse makes a house call in Mitú. Antibiotics are common and are freely administered.

Fig. 29--Drug Store. This building was recently opened as a cooperative drug store to provide medicines at lower cost.

imported by air, and empty bottles provide a cargo on many outgoing flights. Beer sells for $5.00 a bottle, or the equivalent of one-fourth day's work for most laborers.

Some lesser problems with which residents must cope are mosquitoes, jejenes (small biting flies) and niguas which lay eggs between the toes and on the feet. The eggs then become encapsulated and make walking painful until they are removed with a needle or knife.

In the spring of 1970, the Community Action Council voted to establish a cooperative drug store. A stock of drugs worth $30,000 was flown in and offered for sale at low prices; the stock was much larger and prices much lower than private stores had been able to maintain. The effectiveness of this program was not yet evident when the field work was completed.

The field of public health is certainly a vital one and everyone speaks, with concern, of the problems and means of eliminating them, but until both local and national governments are willing to spend more money on both health care and educational programs it is not likely that much progress will be made.

Education

There are two basic school systems operating in Mitú: the internado, or boarding school, run by the Catholic church and the government sponsored primary and secondary

schools.

While the 1964 census of the Vaupés listed only 20 per cent of the population as literate,[103] for the people of Mitú education is an important and accepted part of life. With the establishment of the Colegio de Bachillerato in 1963 it became possible for a student in Mitú to receive the equivalent of a high school education and prepare himself to attend the National University in Bogotá or any other university.[104] By 1970 several students were attending the University but none had graduated.

The first major step in the development of an educational system came with the internado set up when the capital of the comisaria was moved from Calamar to Mitú in 1936.[105] It was designed primarily to educate the children of the Indians who lived near the mission. Originally in the center of town, it was moved to the present location in 1954. By moving it two KM up river the Catholic priests hoped to reduce the contact between the blancos and the Indians. As one priest said, "The blancos possess too many vices which the Indian does not have."[106] Established by the European order of Montfortianos the school was taken over by the Colombian order of Javerianos in 1949.

An important aspect of this change from a foreign to a domestic order was a much greater emphasis on "nationalizing" the Indians. Mass and instruction were no longer given in

the native languages, as Spanish was stressed. An effort was also made to reduce the importance and prevalence of Indian religious customs.[107]

Although still basically a boarding school for Indians, there are also some mestizos attending.[108] The Church has small schools in most of the mission villages throughout the Vaupés but this is the only place they can obtain the full five years of primary school. Students who live close to the school arrive by boat but many are also flown on chartered planes between Montfort, the mission center on the Papurí River, and Mitú. Most of the students return to their homes at least twice each year.

After finishing the regular course of education, many of the students are enrolled in vocational training where they learn mechanics, carpentry, or similar skills. The girls are taught basic nutrition and how to handle household chores. All are taught the fundamentals of agriculture in an effort to improve their level of living. The goal of all this education is to teach them Christian and Catholic beliefs as well as preparing them to cope better with the problems of life. It is hoped that they will return to their villages and become the enlightened leaders of the future. This is unfortunately not working out well, for when they do return home at the end of their training they often find themselves at odds with the old, established order. Many return to Mitú or go to some other larger town

where they can better utilize their training.[109] Thus the Indian villages do not reap any great benefits from the educational program.

In the past there was a much greater effort to promote agriculture in the school. A small garden remains but many fields have been abandoned and the pasture where cattle were kept has been overgrown by brush.

There is an apparent fluctuation in the number of students attending the internado. In 1964 three hundred and twenty-five children were enrolled,[110] but in 1970 the figure had declined to two hundred and forty. The boys and girls are kept rather strictly segregated and sleep in large separate dorms which are elevated some eight feet off the ground to provide a recreation area and cooling for the rooms.

While the school is tied into the town's generating plant it also has its own system in case there is any break down. It, in addition, has an independent water and sewage system. The latter terminates in the river without any purification treatment.

Gardens around the school provide some food while also serving as training areas, but basically it is dependent on outside sources for its supplies. The chief contributors are "Caritas", a United States Catholic missionary program and "CARE" the non-denominational organization supported by contributions of American

citizens. Their supplies are flown in by chartered planes. Other financial support is received directly from Vatican City as well as from the Colombian government.[111]

Teachers in the internado are chiefly priests and nuns, but there are some temporary lay teachers. Most of the small schools on the mission stations are also taught by young women from Bogotá who are recruited annually.

The government school system in Mitú consists of five years of primary school, followed by six years in the colegio. Virtually all children attend the primary school but many do not go on to the secondary level. Some of the citizens are still not convinced of the value of a higher education, especially for girls. As one man put it, "What's the use of sending them to school, they'll just get married and won't make any use of an education?" [112]

With six teachers and only 46 students (1969) the ratio of teachers to students is much better than in most schools in the country. This enables much closer contact and more individual work but the school day is somewhat abbreviated with classes being held from 7:30 - 9:00 and from 9:30 - 12:00.

While there is no tuition or equivalent charge, the books cost about two hundred pesos per year, which is more than most families can afford. Girls are also required to wear uniforms which adds somewhat to the expense.

Certainly a valid criticism of the educational program

is its failure to provide any sort of vocational training in an area where most people are dependent on such manual skills for their livelihood. Employment in the local government has absorbed many of the previous students but few openings now remain. Training in language, history, and science is important but it must be considered in light of the needs of the area and the opportunities for its utilization.

Another problem of the colegio is that teachers are recruited from the major cities of the country on one year contracts. They usually come immediately after finishing their own training and often without prior experience. The major inducement offered is higher pay than is available in less isolated places, but the additional cost of higher living expenses in the Vaupés, coupled with the problems of transportation results in a rapid turnover of teachers. In February of 1970 when the new school year began, only two of the six teachers were back from the previous term. By late March several of these new teachers had already become disallusioned with their opportunities.

On the other hand, there are benefits to bringing in young people with a less parochial outlook and they contribute a great deal to the cultural and recreational activities of the town.

An indication of the success of the educational programs

in the comisaria is the number of literate people, as shown in the national census. In 1938 only 724 (9.3 per cent) of a population of 7,767 could read.[113] By 1964 the percentage of the population considered literate had increased 28.1 per cent (3,765 of 13,403) while the actual number of literate people had increased more than 400 per cent.[114]

The newly appointed (1970) Comisário of the Vaupés is Hernando Gonzalez Villamizar, who was instrumental in the founding of the colegio when serving in the same capacity in 1963. He was also one of the first teachers in the school. With his great interest in education and his authority as chief administrative officer, he may be able to stabilize the teaching staff and promote the introduction of new subjects in the curriculum. The fact that there are government schools, and especially a secondary school, is certainly a tribute to the desire of the Colombian government to incorporate these people more fully into the life and culture of the country.

Transportation and Communications

The importance of a network of transportation and communications in the molding and unification of a country can hardly be overstated. This is especially true of regions far removed from population or governmental centers of the country. As Dr. Raymond E. Crist has written, "The cultural landscape can be said to be permanently established or mature only when a network of roads, or passable trails,

not only makes possible, but greatly facilitates, spatial spread."[115]

In this respect all but the northern edge of the Vaupés must be considered as "immature" for it is the only section served by land communications which connect with the rest of the country. Even these connections are somewhat tenuous and certainly are not easily traversed.

From Villavicencio as far as San Martin, the road is relatively good but from that point on it might better be classified as at best a fair weather road, at worst, a trail. Various proposals have been advanced for improving the road beyond San Martin and continuing it as far as Mitú but no action has been started. At the present time it is possible to go by land from San Martin to San José del Guaviare (205 KM) over a poor road. From this point on travel is over the old road which linked San José to the previous capital of Calamar, on the Río Unilla, a distance of some 90 KM. Very little use has been made of the route since the introduction of air travel during World War II. Beyond Calamar there is a trail to Miraflores (100 KM) on the Vaupés. Beyond this point it is impossible to proceed by land; surface transportation is restricted to waterways. In 1950 a road from San Martin to Mitú was projected[116] and the following year a complete road from Villavicencio to Mitú (750 KM) was proposed as being "good for the church and business."[117] The same writer also

suggested extending the road from Mitú on to Montfort, the main mission station on the Papurí River.[118] In 1970 only a few kilometers at each end near Mitú and Montfort and the middle section across the Abiyú River had been constructed. Small logs were cut and laid across the road bed in the fashion of the corduroy roads common in the early days of settlement in the eastern United States. The portion near Mitú was passable but, since it was not being maintained, it will in a short time be overgrown and useless. It has little utility even at the present time and its deterioration will have no repercussions on the town. Indeed, had the entire 80 KM been constructed the town would scarcely have been effected. Its primary purpose was to link the mission out-posts and to permit land travel rather than relying on water or air transportation. At best it would merely have connected two isolated points. Had a land route been built to join Mitú to the rest of the country it would have been significant, but this road to Montfort was begun before it was economically feasible.

It has been estimated that an overland trip from Bogotá to Mitú would require approximately ninety days[119] but there is no record of anyone having attempted the trip. One man who has spent many years there says such a trip, entirely by land, is in no way practical and has never been accomplished.[120]

Within the town of Mitú there are roads which are used to a limited extent by motor vehicles. As the river and the airport generate the most traffic the road connecting the two has the largest volume of traffic. Another road which is well traveled is from the church compound in town to the internado up river. Many of the roads in town have been cut by open ditches to provide drainage courses for both waste water and precipitation. These ditches make use of the roads somewhat difficult.

The demands of traffic can hardly be used as a justification for building new or improving existing roads. In 1970 there were only five powered vehicles in town, including one track-laying bulldozer and a wheel tractor. The comisaria also had a new dump truck which was used to haul incoming supplies as well as for construction work. The other two vehicles were both Land Rovers: one belonging to the comisaria and the other to the Catholic missionaries. Their principal use seemed to be driving people out to meet the airplanes. The church vehicle often pulled a trailer and hauled supplies from the airport to the mission and also to the internado.

All of these vehicles were flown to Mitú in pieces and were reassembled there. Perhaps a more practical and economical solution to transportation problems would have been the importation of draft animals and carts or wagons for them to pull. They could then be grazed on the local

Fig. 30--Incoming Food. Virtually every incoming flight brings food to Mitú.

Fig. 31--Townspeople at the Airport. Many of the townspeople meet each plane. The bright sun soon forces most into the shade of the wing.

pastures and would not require the costly oil and gas which must also be flown in to service the motor vehicles. Unfortunately, the internal combustion engine is often considred synonymous with progress and it is adopted where other means of transportation might be more practical.

The Carretera Marginal which is designed to open up the areas east of the Andes to settlement, as well as tying them to populous market areas,[121] will have little or no beneficial effect on the Vaupés and Mitú. By opening up alternative areas it may even lessen the demand for improved transportation there. Present plans call for the road to pass more than 200 miles to the west of Mitú which would place the nearest terminal much farther away than the present road from San Martin to San José del Guaviare.

Yet another plan for valorizing the Amazon Basin on an international scale proposes the establishment of a central port on the upper Amazon (possibly Iquitos or Leticia) which would serve all Amazonian countries. An integral part of this plan would be the establishment of a major port on the Pacific with a good road connecting it to the Amazon port city.[122] Such a port and road would be far beyond the trade or transportation area of the Vaupés.

It does not appear likely that any road will be built in the foreseeable future connecting Mitú with the rest of

Colombia. The engineering problems, coupled with the lack of any stimulating economic activity that would benefit from such a road, will probably prohibit its development, not only at the present time, but for many years into the future.

There are short land trails throughout the Vaupés which permit limited land travel. They are often cut by small caños, or creeks, which are bridged by fallen trees. The most traveled of these trails are those that cross the ridges separating the upper drainage areas of the rivers. It is often easier to travel up one river, cross on a trail to the neighboring river, and then float down, rather than attempting an immediate overland crossing between the lower portions of the rivers.

Just above the mouth of the Cuduiarí River is a trail across to the Querarí River which is well traveled due to its shortening of the distance from the Querarí to Mitú. It is so popular that the Indians do not like to live at Santa Marta rapids where it leaves the Cuduiarí. They say that too many people going to Mitú "borrow" their boats and then fail to return them. Generally the boats can be retrieved by making the trip to Mitú but on at least one occasion a boat was sold by the borrower with resultant problems for all concerned.

By far the most common form of travel in the Vaupés is by water. Boats range in size from six foot dugouts to six

ton capacity boats that are twenty-five to thirty feet long. Even the largest boats are built with a dugout forming the bottom and planks attached to raise the sides to the desired height. Building these large boats requires considerable skill and they often sell for 1,000 pesos per ton of carrying capacity. There were also two aluminum boats, but their initial cost, in addition to the charge for flying them in, results in a very expensive boat. Their strenth and lightness are desirable in an area where it is often necessary to pull boats through rapids or carry them around falls but they are too costly for most people.

The means of powering these craft range all the way from paddles to forty-five horsepower outboards. The art of paddling has not been forgotten and both Indians and blancos are skilled in the use of the carved round paddles. More and more, however, the outboard motor is being used, even by Indians who live far from town. Most of their motors are small (six to twelve horsepower) with only the townspeople using larger motors to power trading or work boats. Not only are these people better able to afford the initial expense but they also have more ready access to a supply of gasoline.

The use of a motor during the 1950's had so much status attached to it that when the supply of gas was short or the price too high, many of the blancos used their

motor while leaving Mitú, but once out of sight, reverted to paddling. On returning, the procedure was reversed and after paddling almost to Mitú, the motor was started and the boat returned under mechanical power.[123]

The Caja Agraria operates a pump and supplies most of the fuel. The cost of fuel is relatively high and money could be saved by buying it in Villavicencio and flying it in, but few individuals have the money for such a large investment at one time. All fuel arrived by air in 55 gallon barrels and was then rolled to the Caja and poured into a large tank. In March, 1970 a pipeline was installed from the airstrip to the Caja so that the barrels could be emptied as soon as they were unloaded without the need to move them on the ground.

One of the immediate needs of Mitú is a good mechanic with all the tools and equipment necessary to maintain all the outboards in the area. There was one shop in town which handled all these repairs but the mechanic's knowledge seemed somewhat limited and he had very little in the way of tools or test equipment. That demand is great for repair work is attested by the twenty motors in his shop awaiting repair or being cannibalized for parts. When parts from "outside" are required, weeks or months may pass before they are obtained.

It is rather unlikely that inboard engines would ever by adopted here due to the need to raise the prop or

completely remove the engine while passing the boat up or down the numerous falls and rapids. They are also much less economical to operate and could not be adapted to the small boat generally suitable for operation in this area.

On the Vaupés River between Yuriparí Falls (approximately 70°35'w) and the Falls at Yavaraté (approximately 69°15'w) there are more than sixty dangerous or difficult zones to pass through. The degree of danger varies considerably during the wetter or drier parts of the year, with some being more dangerous during high water and some more dangerous during low water. At no time is it considered safe to travel on the river without a guide who knows the safest places to pass through. In the lower parts of the river the water level varies seasonally more than fifteen feet [124] and some of the falls are twenty feet high.[125]

In traveling to the vicinity of Mitú in 1852, Alfred Wallace reported passing through fifty falls and rapids,[126] while a contemporary, Richard Spruce, was unable to pass the falls at Yavaraté because he could not secure enough Indians to bring his heavy canoe through.[127]

In the early twentieth century when South American rubber dominated the world market it was impossible to move rubber up river and all Colombian rubber was exported by way of Manaus in Brazil.[128] During the "balata rush" of 1928-30, all commerce was still taken down the Río Negro through Brazil. Trade goods and supplies also came from

Manaus but the Vaupés was too dangerous for the larger Brazilian boats and it was necessary for the residents of Mitú to travel to Brazil each spring to pick up their supplies.[129]

River travel is no safer today than 120 years ago and one is constantly reminded by townspeople of the dangers of travel without a competent guide. Although fluvial means of transportation are the most general and the most practical for this area, the only means of lessening the dangers would involve such extensive channel clearance, and or dams, to regulate flow, that it immediately becomes absurd. More reliable motors and possibly stronger boats could ease the problems but the basic physical factors remain beyond the corrective abilities of twentieth century man.

It is the system of air transportation which forms the most viable link between Mitú and the rest of Colombia. It is very expensive, but it functions and serves as a means of supply as well as a means of marketing forest products. If air was abandoned in favor of "cheaper" travel by land or water routes, the Amazonian economy would collapse almost immediately. It is only through providing this uneconomic means of transportation that demand for other cheaper means of transportation can be maintained or stimulated.[130]

A small landing strip was cleared at Mitú in 1936 but it was only after the arrival on the scene of the United States

Rubber Development Corporation in 1942 that air transportation became common. Even then, the aircraft used were amphibians which landed on the river. As recently as 1960 Satena (Servicio De Aeronavegacion A Los Territorios Nacionales) was making its flights to Mitú with a Catalina flying boat.[131] During the period of low water it was too dangerous to land on the river and the air strip was built to make all year traffic safe and practical.[132] The Catalinas were also somewhat unsatisfactory in that they could only carry a cargo of 1,599-1,800 kilos and this resulted in higher cost per kilo.[133]

The airstrip was gradually improved to its present condition which permits DC-3 type aircraft to land and take off in almost all weather conditions. In 1952 the field was described as only an emergency airdrome[134] and in 1953 five rainless days were required in order that the field be safe for operations.[135] The 1:1,500,000 map of Colombia published by the Instituto Geografico Agustin Codazzi in 1958 fails to indicate a field at Mitú but this is probably an oversight rather than an evaluation of the facility. (It does appear on the 1968 edition.)

In 1964 the field was rebuilt by La Empresa Colombiana de Aerodromos[136] and its length was extended to 1,050 meters. The projected length is 1,600 meters which would be suitable for LC-4's or similar four engine type aircraft.[137] The heavier aircraft would facilitate larger shipments of

goods in and out and permit lower prices but their itineraries would also have less flexibility. The DC-3's that are currently flown, come from Villavicencio by way of San José del Guaviare, with occasional stops at Miraflores and Carurú. They also sometime fly to Montfort on the Río Papurí. If DC-4's were used they could not land at any of the smaller towns due to the short runways and development of these areas would be stifled.

To improve the runway at Mitú, cracked rock is continuously being added to the surface. The rocks are broken by workers using small hammers. In twenty days each worker can break a pile of rocks three feet high and five feet in diameter. This makes for slow completion of the project but jobs are scarce and labor is cheaper than crushed rock.

To aid inbound pilots a marker beacon is transmitted from the airport and a two way radio is also maintained to pass local weather conditions on to interested pilots. Several of the townspeople have shortwave radios tuned to the airstrip frequency so they are immediately aware of any incoming flights. The town is so dependent on these flights for its very existence that such interest in them is to be expected.

Over the years, air transportation has increased markedly. In 1953 Avianca made only one light a month while FAC (Fuerzas Aereas Colombianas) and AIDA (Asociacion Internacional de Aviacion) made some flights on an irregular

basis.[138] By 1964 service was increased to two flights by Avianca and a weekly flight by Satena which originated in Bogotá.[139]

In 1969 scheduled flights by companies were as follows: Urraca (Lineas Aereas Urraca), Monday, Wednesday and Saturday; Satena, Thursday and Saturday; and Avianca on Friday. It was then possible to reach Mitú by a scheduled flight every day except Tuesday or Sunday. In November 1969 Avianca gave up its route, leaving Urraca and Satena as the only scheduled carriers.

Neither of these lines is completely dependable. If there is not enough cargo leaving Bogotá to make the flight worthwhile, Satena sometimes cancels flights, much to the chagrin of passengers who have purchased tickets and gone to the Bogotá Airport (El Dorado) for the scheduled 0600 departure. As a government operated airline, Satena is able to offer lower prices than commercial carriers which compensates somewhat for an occasional inconvenience.

Urraca operates from its headquarters at Villavicencio and passengers departing Bogotá must cross the Eastern Andes by road to make connections. Several taxi companies operate collectivos which provide cheap transportation on an hourly schedule. Barring mechanical problems, Urraca can generally be counted upon to fly its schedule. They fly only DC-3 type aircraft which were originally built in the 1940's and many are now having mechanical problems.

At one time in April, 1970, all five of their planes were out of service for maintenance. When they land at Mitú, the oil level of the engines is checked and the necessary oil is added with a five gallon bucket. At times when the planes take off they leave a trail of smoke which resembles a jet plane more than one with internal combustion engines. However the dependability of these planes is almost legendary and they continue to function with few mishaps.

In 1965 an Urraca DC-3 loaded with rubber was lost on the return flight from Mitú and was never located even though one crew member survived and walked out of the forest. In 1970 they lost another plane on a flight across the *llanos* to Puerto Carreno and in early 1971 it was necessary to make an emergency landing in the Vaupés due to mechanical problems. This plane was later dismantled and floated down to Mitú where an attempt is being made to repair it.[140]

Despite these problems the airline and airplanes in general have a very good reputation and there is no hesitation about flying. In Villavicencio when one engine refused to start, a passenger made the comment, "no quiere," (It doesn't want to go) and after it was coaxed into starting, he and all the other passengers, filed back aboard with confidence that it would continue to run and would deliver them safely to their destinations.

Because the planes are used for both passenger and

cargo flights the seats are readily removable and often seem rather loosely attached. It is also something of a surprise to sit down and discover that there is only half a seat belt with no means of buckling it. On a warm day the steward may open an emergency exit to let more air blow through. In such circumstances one is always aware that he is flying and can appreciate the ease of such mobility. There is none of the detachment from reality such as is experienced in a large jet with its pressurized quiet cabin.

TABLE 6.--Changing Air Transportation Costs To Mitú.

Flight	Airline	1964[a]	1970[b]
Passenger			
Bogotá - Mitú	Avianca*	$316.00	N. A.
Bogotá - Mitú	Satena	108.00	$225.00
Villavicencio - Mitú	Satena		170.00
Villavicencio - Mitú	Urraca	190.00	1o0.00
Cargo (per kilo)			
Bogotá - Mitú	Satena	1.03	2.40
Villavicencio - Mitú	Avianca*	1.30	N. A.
Villavicencio - Mitú	Urraca	1.30	2.40
Private Charter Flight			
Villavicencio - Mitú			2.93(per kilo)

*Avianca discontinued service to Mitú in November 1969.

[a]1964 Data from Alvaro Guzman Cortes, "Panorama de la Comisaria del Vaupés," Revista Policia Nacional, Ano LI (1964), p. 4.

[b]1970 Data compiled in Mitú.

The cost of a one way flight from Villavicencio to Mitú in 1970 was $180. This is not cheap by Colombian standards, but it is within the price range of men who do not regularly wear shoes.

In addition to the passenger flights, almost every day other planes arrive in Mitú. They belong to airlines which own only one or two DC-3's and depend on cargo flights for their revenue. It is also often possible for one or two passengers to obtain tickets for such flights.

The planes are old, the landing facilities are often poor, but the pilots are generally veterans of many years flying in this area and their skill may overcome other deficiencies.

For a time Satena also stationed a small aircraft at Mitú which could be chartered for short flights to area villages but it was flown out "for a check" and never returned to Mitú. In 1966 residents asked for its return but without result.[141]

Another means of aerial transportation is provided by the Summer Institute of Linguistics. This organization is carrying on linguistic and missionary work with many groups of Indians in the Vaupés. At each location where they have a representative, a strip is cut large enough to accommodate their Heliocourier aircraft. On any flights when the plane is not loaded, either passengers or freight may be hauled but at rates generally higher than those of the other carriers.

As would be expected, incoming cargo is as varied as the demands of the people, but two types of materials predominate: food and building materials. Food shipments range from fish, steers, and hogs to sacks of rice and crates of vegetables. All are eagerly received and distributed throughout the town.

Cement is a constant need to mix mortar for brick or block buildings and virtually every flight brings a few sacks. Reinforcing steel must also be flown in, as are sheets of corrugated metal or eternit roofing.

The effect of air transportation on building costs is rather impressive. A sack of cement flown in from Villavicencio regularly sells for $150 but if it is trucked as far as San José del Guaviare and flown from there, the cost is reduced to $30 per sack. Records in the comisaria showed that the cost of materials to construct the colegio was $8,400; labor cost only $6,000. The cost of transporting the building materials to Mitú was $17.400 thus making up well over fifty per cent of the total building expense of $31,800.

A major factor in the high cost of flying in supplies is the lack of business generated from the Mitú area. Thus virtually the entire cost of a flight must be borne by incoming traffic or supplies. During a part of the year, rubber is flown out but much of the time the only out going traffic consists of passengers and empty beer or soft drink bottles. The search for forest products which

will stand the transportation costs continues, but there has been little success thus far.

Other means of communication with Mitú consist of mail and newspapers, which arrive by plane, and radiograms which can be received from Bogotá. Mail service is as reliable as the Satena flights on which it arrives. In one case a letter mailed in Florida on a Thursday arrived the following Saturday. All mail for persons in the area is sent to Mitú and held there until the addressee returns to town to claim it. In the case of some anthropologists who spent weeks or months in the field this involved long delays but the mail was there when they returned. Stamps were generally not available but the fee was collected and stamps were attached when the mail reached Villavicencio.

Regular mail dispatches went out only on Satena flights but passengers or crew members on other planes were generally willing to mail letters when they reached Villavicencio.

Newspapers from Bogotá arrived on every flight and were very popular amongst the townspeople. They went overland from Bogotá each morning to Villavicencio and arrived in Mitú the same day they were printed. Thus the residents were constantly aware of what was happening in the rest of the country and the world. The price of these newspapers was only 20 ¢ more than in Bogotá and they were always quickly sold, read, and passed along to others.

Several commercial radio stations broadcasting from Bogotá could be picked up easily in the Vaupés and short-wave stations from many parts of the world could also be heard. The prevalence of small transistor radios among all segments of the population virtually assured that there were few people truly isolated from news of the rest of the world.

In emergencies, or when necessary for any reason, it was also possible to contact Bogotá by means of short wave transmitter, but this was not used much by the general populace.

From the foregoing it should be apparent that although land transportation is difficult in the extreme, river boats and airplanes have created rather effective bridges between this isolated "jungle" area and the rest of the world. Virtually every day residents of Mitú read the same newspapers as do their countrymen in Bogotá, and thus they are well aware of current events, both national and international.

Civic Improvements

For one just arrived in Mitú from the United States, or even from Bogotá or Villavicencio, the town may seem rather primitive, but for those who have lived there for many years there is ample evidence of material progress.

Besides the new buildings constructed of brick or

concrete blocks, there are now poles supporting electric lines, water faucets, sidewalks, and even a sewer line serving part of the town.

Such improvements do not come easily or without great cost in an area such as this and they must be viewed in the context of what was before and what is now there. When Padre Builes toured the town in 1951 he noted that it was built without pattern and there were hardly any streets.[142] Today, though there is little need for conventional roads, they have been laid out and the patterns are obvious in the map of Mitú.

It is the various comisários who have been chiefly responsible for most of the material progress in the town. They have converted Mitú from a small trading camp and mission site into a town with the beginnings of the 'niceties of life." These comisários who run the local government are appointed by the president and leave office every four years when he does. Thus there has not been a great deal of continuity in the direction of progress but each officer has added something to the improvement of the town.

The water system was installed in 1954 and most of the town is served by it. It consists of an elevated tank some sixty feet high with a diesel powered pump to fill the tank and small distribution lines radiating from it. Having this system eliminates a chore that previously occupied a considerable amount of time as each family had

to walk to the river and carry water in buckets. One of the negative aspects of the water system is that it is distributing, without any attempt at purification, water that is highly contaminated with amoeba.[143] Water is pumped, not from the ground, but directly from the river several times each day. The intake pipe on the pump is only approximately ten feet from the shore so that the purity of the water supply is almost immediately affected anytime there is a rain with resultant run-off.

The pressure is often low and most houses have a system of interconnected barrels which serve as cisterns for the individual houses. Because they are aware of the problems of a contaminated water supply, some of the people also have separate cisterns which catch rainwater for drinking purposes.

The expense of pumping the water is paid by the government and the householder is required to pay only the cost of installing the pipe and faucet. Before the pump and central tank were built in 1954 the government was instrumental in encouraging individuals to dig and cement shallow wells which could be pumped by hand pumps. Considering the poor quality of the water supplied from the tank, it appears that water from even a shallow well would be less contaminated.

Other than quality, the major trouble with the central system is that when any problems occur, several days may

Fig. 32--Water Pump. The town's water supply is pumped by a diesel pump directly from the river into the water tower.

Fig. 33--Laundry Float. While water is usually available from the town system, most families have a laundry float on the river where all clothes are washed.

be required to correct them. If it is merely a functional problem without the need for parts, it may be repaired, but if a part is broken, a replacement is not available closer than Villavicencio, or more often Bogotá.

With all of its drawbacks; lack of dependability, low pressure, and contaminated water, the system is a move in the right direction. The major improvement needed is merely a system of chlorination or similar means of purification. Considering the engineering and economic problems already overcome this should not be difficult. The fact that the doctors and many of the people are aware of the problem should provide the needed stimulus. In 1970 there was not yet a plan to install such a system.

A system for the collection of sewage was installed in 1967. It does not serve every house but any reduction in the amount of human feces on the surface, especially where so many people are barefoot, can help reduce the prevalence of hookworm. Sewage receives no treatment before it is dumped back into the river but population below town is sparse for many miles and the effect of the pollution is probably minimal. Because of the great expense involved in the treatment of sewage it is not likely that any effort will be made to provide even primary treatment of such waste. Until population density is much greater it can hardly be justified.

The most recent civic improvement was the installation

in November 1969 of a new diesel generator to supply electricity. There was a smaller set installed several years earlier but it was so undependable as to be worthless. Some people were so dissatisfied with it that they preferred candles and lamps to intermittent electricity. The new generator (100KW, 150V.) is housed in a new concrete and block building and is capable of providing a reliable supply of power for more than the present users.

Partly due to the erratic performance of the old plant, only thirty-three meters have been installed for the new generator. It is not yet an economic enterprise and the comisaria must pay a major portion of the $8,000 per month cost of operation. The original cost of $190,550 was also paid by the government.[144] To receive service the householder must pay an installation fee of $300 plus 30 ¢ per kilowatt hour for all electricity used. For businesses the rate is 55 ¢ per kilowatt hour.[145] Besides providing power for homes and commercial businesses, there is now enough to light thirty "street" lights through out the town. They are located around the central plaza and along the roads.

Because of the latitude there is little seasonal variation in the length of the day and also very little twilight. The generator is started each day at 5:50 P.M. and provides electricity until 10 P.M. This reliable source of light has already gone a long way toward

extending the length of the day and modifying the lives of the people. There are several electric freezers, irons, radios, and other appliances which are used during the evening hours. In early 1971 there were no plans for extending the hours of operation of the generator but it seems likely that as the number of users and the number of appliances increase there will be a demand, and perhaps a justification, for power during a greater portion of the day.

Life is not easy for the townspeople of Mitú, but they do enjoy the benefits of improvements which were not available to the earlier residents of the area. Sewerage, running water, and available electricity do not in themselves enhance the quality of life but they do allow more time for other activities which may result in a more pleasant, healthier way of life.

Recreation

Like isolated people everywhere, the inhabitants of Mitú have developed their own means of recreation and entertainment. Depending on the desire and ability of the individual, these activities range from soccer to dancing or reading. The most popular, based on numbers involved as well as community interest, is soccer (futbol). In 1969 there was a four team "league" and in 1970 a fifth team was added. Players ranged in age from upper teens

to middle aged and all received great vocal support from virtually all the townspeople. Most games were played on Sunday afternoons and businesses were closed as the owners walked to the playing field.

Watching one of these games would be quite a shock for those who feel that violent physical activity and tropical locations are not compatible. Games were played in the heat of the day, almost in defiance of the weather. The only break in play was the usual halftime with water, oranges, and limonada for refreshments. At the end of the game they appeared no more tired than players in the mid-latitudes after similar exertions. Team practices are generally held in the early morning, not just because it is cooler then, but because it fits in better with work schedules. Children begin competing with one another at the age of five or six kicking balls, cans, sticks or most anything that will move, so that by the time they are old enough to play there is no problem of conditioning.

On one occasion a team and some of its supporters was flown in from Miraflores, about forty-five minutes by air. For this game a queen was chosen and she led both teams around the field in a formal parade before the game began. Interest for this contest was so high that the tractor, dump truck and many boats were utilized to take spectators to the internado where it was held. Some of the young girls even served as cheer leaders to urge on

the local players.

To get the maximum use of the "imported" players, a basketball game was also played. There were, of course, no indoor facilities for basketball and much of the game was played in a light rain. The low level of the players' skill plus the poor officiating and two loose baskets all contributed to a wild game. The fact that any points were scored was a tribute not so much to the skill of the players as to their perserverance and stamina. Judging from the performance of the Cauchero basketball team, it will be many years before Colombia is a major threat in the World Olympics!

In addition to the athletic aspects of the visit of the Miraflores teams two other incidents occurred which are perhaps revealing facets of life in this remote area. The first was that the plane which flew them in required maintenance at Villavicencio and was two days late coming to pick them up, an illustration of the precariousness of all travel arrangements in this part of the world. The second related event was that during the extra time they stayed in Mitú they virtually exhausted the food supply. This was especially true with respect to bread and rolls. The two bakeries were unable to keep up with demand as the visitors ate large amounts of baked goods and also bought others to take back home where fresh bread was not available.

Swimming and boating were also favorite activities of many people. Children are taught to swim at a young age and spend many hours in the river. Although outboard motors are common, learning to row is still important in this culture and children four or five years old were often seen paddling canoes about.

There were also a couple of light aluminum boats which were sometimes used to pull waterskiiers. Such use of large outboard motors and the consumption of sometimes precious gasoline made this a sport most could not afford, and it seemed strangely out of place and frivolous in the midst of that environment.

On one Sunday, a Gran Regata was also held on the river. It consisted of ten teams, a boy and a girl, paddling dug-out canoes. The course was up river about one and a half kilometers, circling a marker boat to pick up a card and then returning to the starting point. As an entry fee was required and a cash prize given, there was real competition between the teams and great excitement among the spectators who lined the river bank. The male paddler sat in the rear and in addition to paddling had to periodically splash out the water which came over the side of the canoe. As important as the paddling was knowing which part of the river had the strongest current. Some teams went up along either bank while others went right up the middle. Adding excitement and suspense was the fact that

several of the canoes swamped in mid-stream and former occupants had to right them, splash out the water, and climb aboard while drifting with the current. Considering the tree or four inches of freeboard this was no small feat. All finished in high spirits and as each boat reached the finish it was tipped over by those on shore, providing the tired team members with a cooling dip in the river.

Less of a spectator sport is Tejo, a game played by many of the men on weekends. Basically, the game consists of throwing steel weights so as to hit a packet of black powder lying on the edge of a four inch pipe stuck in clay with only the end protruding. When properly struck, the powder explodes with a loud bang and the weight is blown into the air, to the great delight of the player and his partner. A rather important part of this game was the great number of bottles of beer or aguardiente which was consumed. These were usually marathon contests lasting for several hours; the longest observed was about six hours.

Dances were held periodically, usually to raise money for some special project. Like many such activities in Latin America, they tended to start late and last until two or three in the morning, long past ten o'clock when the generator was turned off and most of the town was quiet. An important part of such dances was serenading

the townspeople on the way home. On the morning following these dances, the day always seemed to start a bit more slowly than normally.

Fishing served as a form of recreation for many people while also providing some protein in the diet. Over the past thirty years fishing has gone steadily downhill, perhaps due to the use of poisons and dynamite or possibly through pollution from the greater use of outboard motors which sometimes discharge both oil and gas into the water. Regardless of the cause, most fish caught in the river are small and not many are caught.

Amongst the Indians, fishing is still a vital part of their life and diet; since they rely on poisons (now illegal), and traps, on the smaller streams, they take more fish. Many individual Indians also use hooks and lines.

The mestizos living on the main river can use neither poison or traps and must rely on hooks and lines. Most use no pole and simply twirl the heavily weighted line to throw it into a likely spot for bottom fishing. The fish they catch have a good flavor but are full of bones; they would find little favor if other more desirable fish were available. Fishermen have such poor luck it seems more appropriate to consider fishing a source of recreation rather than a source of food.

Pool is important both as a participant and spectator sport. Three different locations had one table each. One could hear balls clicking every evening and most of the

Fig.34--Basketball games are played outdoors and go on even in the midst of rainshowers.

Fig. 35--A canoe race provides Sunday excitement. The small dugouts were often swamped in the middle of the river.

time during the weekend. There is an obvious fascination to the game and there were always spectators looking on from the sidewalk. One pool hall also had a jukebox which was an added attraction, but it was taken out and flown back to Villavicencio when the owner failed to keep up the payments.

The Teatro Vaupés is the site of much indoor entertainment. Movies are shown about once each month, whenever they are available. Often two or three 16mm films are flown in at the same time and are shown on successive nights. Most films are English or American with Spanish subtitles added. Showings were sometimes enlivened by reversing the order of the reels, thus making the story line somewhat difficult to follow but there were no serious complaints. The audience was there to be entertained and they were! The entrance fee for an adult was five pesos and for a child three. Workers were usually paid only twenty pesos per day and their willingness to pay, for what is for them very high priced entertainment, is an indication of how thirsty for it they are.

One night a special Bingo game was arranged with the winner to receive a typewriter as the prize. The price of the cards, forty pesos, was more than most of the people could afford but some pooled their money and others went just to watch. Each person playing a card had at least three other people "helping him" and the theater was again

crowded. The room was filled with good natured shouting each time a number was called and when three persons simultaneously shouted "Bingo", it was decided to sell the typewriter and divide the money. The winners were happy, the spectators had an enjoyable evening, and happiest of all was the sponsor who made a sizable profit.

The most interesting event witnessed in the theater was a one man show to raise money for the purchase of Christmas gifts for the children of Mitú. The standard admission of five and three pesos was charged and there was a standing-room-only audience of nearly 200.

The performer, flown in from Villavicencio to play in several outlying towns, did not disappoint his audience and had something for everyone. He performed orations, recited poetry, mimed records, did sleight of hand magic, and climaxed the show with a spectacular demonstration of "blowing fire" from his mouth that seemed to threaten immediate destruction of the theater, as a large ball of fire rolled along the ceiling. Surely Vaudeville is not dead, it has merely been displaced in areas offering more sophisticated entertainment.

Among those who are literate, which includes most of Mitú's population, reading was a very popular form of recreation. Few conventional books were seen. Virtually all resembled the "comic" books of the United States with actual photographs being used rather than drawings. The

more popular topics were war, athletics, and love stories with all the usual soap-opera complications. Some may question the educational value of such reading but it is reading, and the readers are undoubtedly improving their reading skills.

From the above comments it should be apparent that the inhabitants of Mitú are much like people all over the world. Their tastes in entertainment and recreation are not awfully sophisticated but, in view of the isolation of the town, their activities are well chosen and meaningful to the population.

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CHAPTER V

CULTURAL AND RELIGIOUS CONFLICTS

During a discussion of the situation in the Vaupés, an English anthropologist proposed the following as an apt discription: "The caucheros are chasing the Indians to do their work of collecting rubber, the missionaries are chasing the Indians to save their souls, the anthropologists are chasing the Indians to pick their brains, and the Indians are trying to earn enough money to buy batteries for their transistor radios!"[1] Mr. Silverwood-Cope's exaggerated statement serves to highlight the importance of the Indian population in this frontier zone.

Had there been no indigenous population, the entire area would probably still be empty of any human life. The missionaries came originally because of the Indians, and without the labor of these Indians, there could never have been a rubber industry.

The value of the Indians is not universally recognized, but some have acknowledged their role. Marcos Fulop has written: "It is impossible to think of the Vaupés without considering the Indians, they are so indispensable to its utilization. If they disappear or go to Brazil, the Vaupés will be empty."[2]

The treatment of the Indians by the whites and the

relationship between the two groups is one of the major problems to be solved. The government has made attempts to safeguard the rights of the Indians by passing laws regarding their treatment and by assigning government employees to oversee the enforcement of these laws. Officials of the Catholic church have the authority to impose punishment on Indians for breaking laws and they also protect the Indians from working for undesirable employers, through the recommendation they must supply any propective employer. Nonetheless, the treatment of the Indian workers is sometimes not up to the legally prescribed standards. A statement by Dr. Hegen seems to fit the circumstances well: "Notwithstanding the fact that all nations sharing Amazonia have laws dealing with the protection of the indigenous population, one is tempted to paraphrase an old Russian saying; 'Amazonia is big and the presidents are far away!'"[4]

Virtually all contact between the two cultures has been on the status of "worker and boss" and there has been little experience on a basis of equality. Hence, many _blancos_ tend to regard the Indians as less than equals and the Indians in turn distrust and sometimes dislike the _blancos_. There is less open hostility than in the past (1952) when during one twenty month period, twenty-three whites were killed by the Indians.[5] At this time they said that "the Indians hate the whites. They are the slaves while the whites are the capitalists."[6] Another

investigator in 1947 noted that the Indians "hated the whites because of being forced to collect rubber."[7] There is no question that the past relationship between the races has been anything but good.

The most recent killing of a blanco attributed to the Indians occurred in 1968 when a rubber empresario was killed and his dismembered body thrown in the Vaupés River. Four Indians were charged with the crime. One was subsequently killed, one had just been captured and jailed in February,1970, and two remained at large.

There is still a good measure of ill will on the part of some Indians. In one discussion of the situation with several Indians, they became rather incensed and spoke with great approbation of an incident in 1957 which resulted in three whites being killed.

Most complaints did not deal with physical abuse, but rather that the Indians were not given equal pay for their work or were not treated as equals by the Colombians. This attitude toward the Indians was recognized by the Chief of the Division of Indian Affairs, Gregorio Hernandez de Alba, who complained in 1966 that the Colombian settlers "mistreated and exploited the Indians in violation of all natural laws, religious and legal, while denying them their human rights guaranteed by international treaties."[8]

Most households in the town have a young Indian girl to help with the cooking, washing, and other chores.

Much of the manual labor such as digging or carrying is also done by Indians, which reinforces the concept held by many whites that this is their predetermined role in life.

There are few Indians in this part of Colombia who have not been in contact with either the caucheros or the missionaries, but even among those farthest removed from outside influences, there is often strong feeling against the blancos. Stephen Hugh-Jones, a Cambridge anthropologist studying a group of Indians far from any whites, reported that when he and his wife made their initial contact with the Indians, there was only "loathing for all whites."[9] After living with the group for six months and learning their language, they had gained their confidence to the point that two shamen flew out with them to Mitú and Villavicencio.

Apparently the bad experiences Indians have with whites are quickly passed on to their neighbors in ever widening circles, so that even those untouched by outsiders have no desire for contact with whites.[10]

In Mitú itself, there is some separation of the different groups, with the Indians generally living on the north or south end of town, but in the earlier period, there was so much intermarriage that the system is not rigid. The commercial businessmen prefer a central location for their shops and since they are all blancos,

this contributes to the separation.

The Catholic Church has also made an effort to keep the Indians separate from the settlers. In town the Indian school was moved from the previous location on the plaza to the present site south of town. One of the parish priests said that they make no effort to incorporate the Indians into the Colombian society because the blancos possess too many vices which the Indians do not have. Chief among these vices is their attitude toward women and the way they "waste money."[11]

In the southern part of the Vaupés, along the Papurí River, the Catholics have gone even further in their efforts to avoid outside influences. Although a government regulation called for the establishment of a school there, they refused to carry out the order and the area remains without a school. Some of the priests even opposed sending a doctor or police inspector into the area.[12] The Catholic Church has been accused of attempting to isolate the Indians as was done in Paraguay during the eighteenth century.[13]

Because of the large number of Indians in the Mitú area and the continuing immigration of outsiders, it appears inevitable that efforts will have to be made to achieve better understanding between the two groups. This is the direction in which government policy seems to be moving. There is fear that the assimilation of the Indians

is simply another means of subjugating and placing them in an inferior position while at the same time destroying their traditional culture. This attitude was voiced by one author who wrote: "It is desired to incorporate him (the Indian), not with his traditional culture, but as a field hand, the worst suited and the poorest paid in our rural or urban economy."[14]

The official government policy has been to recognize the Indian form of government and to "ratify" their choice of a leader by issuing a formal commission to the capitanes of each group. The power of these leaders has always been limited and there is no overall organization of the Indians to present their point of view in any negotiations.

In a conflict over what should be taught, in one of the Indian schools, it became apparent that the government's decision (as presented by the acting Comisário) would prevail over the desires of the Indians. The point under contention was whether the teacher could concentrate on teaching academic subjects (reading, writing, and Spanish) which the Indians desired, or should stress agricultural practices, nutrition, and handicrafts to produce more income. Both the teacher and the acting Comisário favored the "more practical approach" of improving the standards of nutrition and living. The Indians had favored becoming literate as this puts one in a different social class. The capitanes were overruled and the formal schooling was

virtually ended. Perhaps the chosen course will result in a better way of life for the Indians, but the request of their recognized leaders was denied.

The lifelong practices of the Indians also cause problems when they are in violation of government regulations. The use of barbasco to poison fish is a case in point. It has been forbidden by law, but such a law has little meaning for those for whom the use of barbasco has become a way of life since it provided a major part of their diet. Exercising some degree of discretion, they continue the practice. In order to preserve the forest resources, an effort has been made to stop the felling of large trees. Such an attitude completely fails to appreciate the fact that without these large trees, to hollow out for boats, the Indians could not exist.

Other tensions are sometimes created when Indians visit town. They complain that food is too expensive and that no one cares if they have anything to eat. If they do not bring enough food they must go hungry. This may be generally true but some meals were given away in the Vargas' restaurant and the local priests also provided some free food.

The basic problem seems to be that the Indians have been introduced to the modern culture and economy but they are not yet fully a part of it or equipped to compete with those of greater education and experience.

The influence of "transistor culture" has extended to almost every group in the region. A Catholic priest gave a small radio to a group of Macú who did not understand a word of Spanish. Nonetheless, each morning at 0330, they turned the radio on and listened to broadcasts in Spanish until the signal faded with the rising sun.

In the evening they turned it on again. When the batteries are run down they will probably try to get replacements. Other Indians closer to town bring agricultural produce or baskets to sell to the merchants in exchange for manufactured products.

It is a very moving sight to see a young Indian man purchase his first pair of shoes, put them on, and walk proudly away with his barefoot friends enviously looking on.

Earl Parker Hanson observed similar conditions of disrupted culture in the Upper Orinoco region in 1932.[15] The Indian society had previously been disrupted by the incoming rubber collectors and the large supply of manufactured trade goods which they introduced. As the rubber industry declined, so did the supply of trade goods. The Indians were then compelled to revert to their former way of life or move closer to towns where more manufactured products would be available. Either decision resulted in material or physical dislocation of the Indians. The present deterioration of the rubber industry seems to be resulting in a repetition of this situation.

After many years of working in rubber, albeit, often at very low wages and in an almost constant state of indebtedness, the Indians have become accustomed to a steady flow of goods from outside the area. Those who have studied the situation for the past thirty years see the Indians as having become much less independent and also as being in a poorer state of health than during the 1940's when outside influences became so pervasive.[16]

A partial solution may lie in the efforts of the Indians to collect rubber for themselves and sell it directly to the Caja Agraria without involving the empresario, or middleman. Another possibility is the development of different agricultural crops which, if not valuable enough to warrant shipment to the larger markets, could at least be sold in Mitú or exchanged for the manufactured goods which have become "indispensable" to the Indian population. Such potentially commercial crops have been introduced on an experimental basis by missionaries in the area.

In addition to the material differences between the white and Indian cultures, religious problems have also caused tensions and difficulties. The indigenous religious beliefs caused no great problems for the Catholic missionaries, but the increasing number of protestant missionaries, and their success in converting Indians to protestantism, have caused ill-will and suspicion.

In the Mitú area, very few of the blancos have been converted to protestantism - the successes of the protestant missionaries have been largely among the Indians, and their acceptance of the "foreign" religion has lead to rifts between the blancos and Indians and also among the several Indian communities.

Protestant activity in the Vaupés began in the early 1940's with representatives of the Evangelical faith. While they are still active, there are also others from New Tribes Missions and the Summer Institute of Linguistics.

This latter group is the most widespread and well organized. In the immediate area of Mitú, they have eight teams working with as many different groups of Indians. Their method of operation is to place one or two missionaries with each village that will accept them. After learning, analyzing, and writing down the native language, they then translate the New Testament and teach the Indians to read it in their own language. The entire process usually requires eight to ten years for completion. All during the period of their residence the missionaries continue efforts to convince the Indians of the validity of their beliefs as opposed to those of pagan Indians or of those of the Catholic church.

As soon as the missionaries are accepted to live in a village, they immediately establish radio contact with their eastern headquarters at Loma Linda (Meta). They

Fig.36--Emergence Rock. Indian legend holds that the first Indians emerged from this rock near Urania.

Fig. 37--A Protestant Service. Many Indians have been converted to protestantism. The leaders conduct services with songs being sung both in Spanish and Indian languages.

also clear a short strip so that they can be reached by the small "Heliocourier" aircraft which brings supplies and can also ferry people in or out. With its powerful engine and special flaps, this airplane needs only a very short run way and is capable of moving heavy pay loads.

The services which this plane makes available may be an important reason for the improved relations between S.I.L. representatives and the Catholic organization. Since the single engine "Beaver" aircraft was withdrawn from Mitú, the S.I.L. pilots are often asked to fly priests into or out of isolated posts. They are also sometimes called upon to transport the government officials on business trips. By providing an otherwise unavailable service, as well as promoting contact between the groups, tensions have been eased.

In the past, feelings between the protestants and Catholics ran at a much higher pitch. In 1952, one missionary with seven years experience in the Vaupés was ordered out on twenty-four hour notice by the Monseñor, whose authority was such that the missionary left on the next plane, but later returned. During the same era some Bibles in the Indian languages were burned.

Both religious and governmental officials are still somewhat suspicious of foreigners coming in and often luggage is searched. Conditions are much improved over 1961 when a visiting anthropologist was restricted to traveling

only on a mission boat in the constant company of a priest. A further restriction was that he not ask any questions of the Indians regarding their religious beliefs. Currently, anthropologists are required to have a permit from the Department of Indian Affairs to study the Indians but are then given complete freedom in their work.

Some religiously oriented problems occur due to the semi-annual conferences which are held each February and August by the protestants. To reach as many people as possible, three meetings are held; one each on the Vaupés, the Cuduiarí, and the Querarí. With more widespread use of outboard motors, many Indians now attend all three meetings rather than just the one nearest them. As each meeting lasts five days, with travel time between, this means that for a period of about three weeks the protestant Indians are not available to work. As the February meetings coincide with the dry season when conditions for collecting rubber are at their best, the Indian worker is faced with a dilemma: to attend the meetings or to continue working in the rubber harvest. He often elects to leave his work in favor of the meetings and must then be "hunted down" and returned to the job.

One man blamed the protestant missionaries for the "laziness" of the Indians. He said they used to be good workers but they now "spend all their time singing, praying, and reading the Bible."[17]

Fig. 38--Mitú Church. The Catholic Church is the most impressive building on the plaza. To the right is housing for priests and workers.

Fig. 39--The Internado. The internado is a boarding school run by the Catholic Church to educate Indian children.

Father Arisdeva complained that the protestants tell the Indians the Catholic church is a "church of demons," while the Catholics say nothing bad about them.[18] In spite of his feelings, he agreed to share some of the dried milk and eggs, sent to the internado, with one of the protestant Indian settlements.

These relief shipments of food have also been the focus of tensions. They are said to be donated by "Caritas," a Catholic relief organization, but the sacks and packages bear the usual markings of "CARE" and "Gift of the American People." Whatever the source, the Catholic church probably has the most pervasive and efficient organization for their distribution.

While ethnic and religious differences have not disappeared, progress is being made. There seems to be greater tolerance among all groups than was evident in the past and there is reason to be optimistic about the possibility of developing even greater unity in the future. However, the fact remains that the businessman, the missionary - both protestant and Roman Catholic - and the anthropologist, all have different notions as to how best to integrate primitive Indians into the economic, religious, and cultural mainstream of the nation. Cultural homogenization of the Colombian population will certainly continue, but it is to be hoped that in the process of becoming Colombianos the basic human rights of the Indians will be respected.

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CHAPTER VI

TWO REPRESENTATIVE FAMILIES OF THE MITÚ AREA

To provide a more accurate description of the character and attitudes of some of Mitú's residents, several interviews were made with Don Tito Vargas and Samuel de Espriella.

Don Tito is a merchant and businessman in Mitú. His personality and character made him an interesting subject. He is a very friendly, outgoing man with a ready smile. His physical appearance is enough to set him apart. In a land of small men, he is almost six feet tall and weighs nearly 230 pounds.

Formerly a soccer player, Tito now confines his athletic endeavors to weekly games of Tejo (throwing weights to explode black powder caps) at which he is the town champion. Before beginning to play, he always dons a black beret which further serves to set him apart from the other citizens.

With his wife, Alicia and a brother-in-law, Manuel, he runs the hotel and also conducts various other business enterprises. Another member of the family is Sandra, a three year old girl, whom they befriended after the death of her mother.

Fig. 40--The Vargas Family. Tito Vargas, his wife Alicia, and Sandra on the porch of La Maloca Hotel.

Fig. 41-- The Comisário. The new Comisário, Hernando Gonzalez-Villamizar is greeted by Tito at the airport.

Tito was born in Bogotá in 1927 and spent his early years there. He received his bachillerato (diploma) after four years in the school of Agro-Economics there. From then until 1963, he worked at various jobs both in Meta and in Bogotá. During La Violencia he was working in a store in Villavicencio and because he was a Liberal he was arrested and spent four months in a Bogotá prison as a political prisoner before he was released.

In the 1950's he was running a logging camp in Meta that was raided by a communist band which killed eighteen people. In order to pay compensation to the survivors, Tito was forced to sell all that he owned and he started out again in Bogotá with $5. After some five months of door-to-door selling of electrical appliances, he had saved enough to buy a stock of trading goods and came to Mitú on August 8, 1963. Business there was very poor so he rented a boat and traveled down the Vaupés as far as Yavaraté, on the Brazilian border, trading for skins, baskets, and birds from the Indians.

On the way back up river he again suffered a financial setback as one of the boys working for him fell overboard and drowned. All of his cash went to the family as compensation and he was left without funds to get the goods traded from the Indians to market. This problem was solved by selling his own hat for $200. He had bought it in Bogotá for $150. With this money he flew to Bogotá

where he was able to sell his stock for $8,000. The original trade goods had cost only $500 so it was a successful venture.

He returned to Mitú and operated his small store but due mainly to offering credit to rubber empresarios, he often had very little stock. At one time his store was known as the "Salchichon Store" because for many days practically his entire stock consisted of one large sausage hanging over the counter.

During all this time he was renting his store from the comisaria (which still owns a considerable amount of property fronting on the plaza) but he encountered problems due to political differences, as well as arguments about the stocking policy of the official comisaria store. Once when he left Mitú he returned to find he had been ousted and his goods removed from the store. He then set up a tent in the park and operated from there until he could get back into the store. From 1963-66, he estimates that he lost $72,000 worth of stock to seringueros who never repaid him. Realizing how precarious his position was in the store he decided to try to obtain the only building on the "Green Side" of the street near the river. Colombian law prohibits permanent buildings within fifty meters of the river but this house was built before the law was in effect. He was eventually able to rent the house with an option to buy it for $15,000. As soon as

he took over he set out a stock of merchandise and in four days made enough profit to buy it.

By February, 1966 he had enlarged the originally small house to include a covered porch on three sides, an apartment for himself and his wife, a kitchen to service the first restaurant in town, and three hotel rooms in the back. All of this expansion was planned and most was done by Tito himself with the aid of hired Indians.

Although there is another store which takes in boarders, this is still the only self-acclaimed hotel in Mitú. Because of its superior location on the river, most transient trade comes to Tito's store. Among those having signed his guest book are many prominent anthropologists from Colombia, Great Britain and the United States, as well as other scientists from all over the world - including the University of Tokyo. One of his prized signatures is that of Misael Pastrana, elected President of Colombia in 1970.

In addition to the hotel, which often has all three rooms filled, the restaurant brings in additional trade. Indian girls serve as cooks and the menu tends to include an overabundance of starches, yuca, platanos, and rice. This is the diet most of his customers are accustomed to, and prefer; business is usually brisk.

This was not the end of Tito's problems however, his Mother became ill and required several major operations

before she died in Mitú in 1968. At this time, Tito became discouraged and for a short while left Mitú. He was encouraged to return by a friend who came with him to help construct an oven for a badly needed bakery. Since the completion of this bakery, the price of a standard bag of rolls has been lowered from $4.00 to $2.50 and in late 1969 a new bakery was opened in competition with his. Thus far, both are doing well and the competition has hurt neither.

Among other projects with which he has been involved is the construction of a new airport terminal building. The previous Comisário had brought in an outside contractor to construct the building for the new generator plant at a cost of $36,000. Tito thought this was an exorbitant figure and to prove his point agreed to put up the airport building with the stipulation that when it was done he would have the concession to operate it. The two buildings are approximately the same size but the airport building includes rest-room facilities which the other does not. The total cost of the second building was only $14,000. Tito felt he had certainly made his point about the high cost of the generator building, but his "triumph" was short lived, as he discovered in February, 1970 that the new acting Comisário had awarded the operation of it to a competing merchant. Such are politics, in Colombia, as well as other countries.

Tito also had a contract with the government to

transport workers to and from the Evangelical village at Garrafa on the Cuduiarí River. He owns one of the larger boats in Mitú (about 30 feet) and with his 22 h. p. motor moved both men and supplies to construct rest rooms with a sewer system and bricks to line the inside of a (33 foot) dug well there.

Another business venture is the operation of the Teatro Vaupés, the only movie theater within several hundred miles. The original building was constructed long ago by the Rubber Development Corporation but in 1969 Tito installed a sloping floor with benches and brought in a 16 mm projector. There is no set schedule for pictures but periodically they are flown in and adults and children pay $5 or $3, respectively, to pack the theater. Most of the sound tracks are in English but the use of Spanish subtitles seems not to detract from their enjoyment as they travel by film to distant parts of the world they will never see. This enterprise has caused Tito some problems with the operators of cantinas and pool halls because the popularity of the movies drastically cuts into their trade. In 1970, Tito was using a 16 mm camera to make a movie of life in Mitú. He managed to include most of the residents of the town so it should have drawn large audiences to the theater.

As the local agent for Satena (National Airline), Tito is responsible for ticket sales as well as distributing

incoming cargo. A related role is that of agent for correo aereo (air mail). Besides handing out mail to the local citizens, he holds incoming mail for all the missionaries, anthropologists, linguists, and others who are working in that part of the Vaupés. (In 1971 this system of mail delivery was altered and all mail now goes through the mail room of the comisaria.) Because Tito himself is often busy with other affairs, much of this work is done by his wife, Doña Alicia, or his brother-in-law, Manuel, who works at various jobs around the hotel.

In considering the future prospects of Mitú and the eastern Vaupés, Tito feels that the problems faced are a combination of politics and economics. Many of the people there resist all change and in his opinion many of the blancos are not willing to work to improve their situation. Many have the attitude that since their only contact with the outside world is by airplane, they are doomed to live in an economic backwater. He points out that most of the planes leaving Mitú go out empty and if more products were shipped out the price in both directions would be less. Their problem is in finding products which will stand the cost of air freight. One suggested possibility is floating high quality logs to Mitú where they could be cut and dried and when a plane came in they would be ready for shipment. Another product suggested by Tito is fariña. As power grinders become more common this could certainly

be a practical idea. A more refined product would be a tapioca made from the yuca but this would require a factory which could control the humidity and he doesn't feel this is practical in the near future.

Most of all, Tito would like to see a team of outsiders - preferably Americans, because he feels that they have the money and a more progressive outlook - come in and make a complete survey of the area's natural resources, especially minerals which have been largely neglected thus far. When suitable products are found, he sees the need of a great deal of foreign capital to finance their development and also foreign management to run the plants for the first four or five years while locals are being trained.

Having observed the rubber business here for the last seven years, he now considers it a thing of the past. Although there are still empresarios running crews, the cost of labor and the diminishing returns no longer make it a practical operation. Some other industry must be found to replace it.

Tito is vitally concerned with the well-being of the community and was president of the Accion Comunal during February, 1970 when that group succeeded in getting tax money to finance the opening of a community drug store. Because the hospital and individual stores often have very few medicines, this store is providing a genuine service by offering a larger stock at reduced prices. It may be

worth mentioning that Tito himself stocks some drugs and he is thus undercutting his own prices for the benefit of the community.

A problem yet to be solved in Mitú, as well as the surrounding area, is that of the relationship between Indians and *blancos*. It is Tito's dream that "someday the Indians will have all the things the *blancos* have, a job, a home, food, and clothing." There is a continuing struggle between the Indians and *blancos* but Tito feels that the Indians are developing a greater sense of identity and stronger personalities. He has asked Indians to carry a bag for him and been told that they would do it only if they were paid. Such assertiveness on their part was unknown until recently and he considers it a good sign. Contrary to some *blancos*, he feels that the Indians can be trained to do any job, but this training must be available.

Since the fieldwork for this paper was completed, Tito has become involved in the construction and operation of a second hotel and theater in Miraflores and is also acting as an agent for a Mexican firm in buying *chicle* for use in chewing gum.[2] Thus he continues his very active role in the promotion and development of the Vaupés.

Tito is a businessman and his various enterprises are undertaken with the goal of earning a profit, but the Vaupés is his home and he is concerned about the people who live there - both Indian and white. He would like to see the

economy developed on a solid base that would permit all people to live together peacefully on a higher level of living than is now possible.

Samuel de Espriella is very different from Tito in most every way. He is a small, somewhat shy man who is interested primarily in the agricultural potential of the area. Samuel is a native, having been born in the Vaupés in 1915. He proudly explains that his grandfather came to Manaus from Italy. His father then came to the Vaupés from Manaus and was involved in collecting rubber and trading with the Indians. He traveled a great deal and even made one trip from Manaus to New York where he heard Enrico Caruso sing.

Dr. Rice mentions that on his first trip (1907) he was guided and aided by "José Espriella, a young man of great natural intelligence."[3] This was in the vicinity of Calamar and José was almost certainly Samuel's father, but the reference was not discovered until the fieldwork was completed so the relationship has not been definitely established. (Samuel's oldest son is named José.)

Soon after Samuel was born, the family moved to Huila where he was raised. His father continued to work in rubber and also ran a trading post at Urania, near Samuel's present home.

As a young man, Samuel worked as an arriero (mule driver) on the old road between Calamar and Miraflores. (This road was opened by the RDC to facilitate movement

of rubber from that area. The road has since been abandoned as air travel has virtually eliminated all land routes. There is talk of reopening it to lower transport costs but at least six years of such talk have produced no results.)

Samuel came to his present location on Mitú Igarape (creek) in 1943 and married a Cubeo Indian woman. In all the years they have been married his wife (although she understands quite a lot) has learned to speak only a very few words of Spanish. Samuel has never made any effort to learn Cubeo because he often has Indians working for him and says they talk about him in Cubeo. Since he doesn't understand, it doesn't bother him but if he spoke the language he might get mad and it would cause him trouble. On the surface this may seem a very short sighted attitude, but on the other hand, it may be a realistic appraisal of the situation and an easy means of avoiding additional problems. He now farms five different small chagras with the average size being only about two hectares. Four are located about one-half hours' walk from his home while the other is several hours farther west on the caño Cubiyú. Because of the distance, the latter is often worked for him by neighbors but he usually goes there to oversee the harvest. During one of the interviews he was very happy because word had just come that they had achieved a very good "burn" there and prospects for the next year looked good.

Fig. 42--Samuel and His Family. Samuel de Espriella poses with his family in from of his home.

Fig. 43--New House. Samuel is now constructing a new home with the aid of a government loan.

Most of the field locations are changed every three or four years depending on the crop being grown. Land used for maize is planted every other year with an alternate year of fallowing. With most other crops, land is left fallow for two years before it is replanted. Many of the fields consist of mixed crops but yuca dulce and yuca brava are never mixed to "avoid accidental crossing." Samuel cited the usual reasons for moving the fields, lowered production and encroaching weeds, but felt that if the soil was not so inherently infertile, such constant movement would not be necessary. He would like to use fertilizer to increase yields but the local price of $110 a 50 kilos is more than he can afford.

An exception to his rotation system are the plots used for varieties of bananas or plantains. With proper care and cleaning, these could be grown on the same land for fifty years. Samuel's father bought an old, overgrown banana field, cleaned it up and then used it for twenty more years.

The main crops grown are bananas (platanos, bocadillos, dominicos, and topochos), ñame, piña, yucas, aguacate, uva, and papaña.

The only new crop being grown is coffee which is only for their personal use. Samuel thinks the coffee he grows is of an excellent quality but due to lack of a market and transportation costs, he cannot expand his production. In

the past he also grew some rice but was unable to find a market for it, although rice forms a major part of the diet of the blancos. They preferred to buy grain that was brought in by air. The lack of new seeds greatly restricts any experimentation.

Additional food for the family is supplied by a small flock of chickens and several pigs that forage around the homesite for much of their food.

Another source of protein is the fish trap which is placed in the caño during part of each year. In the rainy season the trap is removed and fish are permitted to move in either direction, but as the rains slow the trap is erected across the stream. It consists of upright strips of bamboo tied together by vines to form a fence. In the center is a recessed chamber with the extrance aligned so as to permit easy entrance but making exit difficult. Fish trapped there are dipped out daily. The catch is not large enough to produce any for sale, and during extremely dry years may be negligible, but it is important in the diet of the family.

A major cash crop is fariña made from the yuca brava. One month he made and sold two tons of this in the Mitú area; most of it to rubber collectors. The price of fariña fluctuates somewhat due to quality or the abundance of supply but averages $3 a kilo. Samuel recently purchased a three horsepower Briggs and Stratton gas engine for a

power grinder to make farina from yuca. The grinding surface was made by driving nails through a sheet of tin and mounting it on a drum which is connected to the engine. With this machine, he can now grind a sixty pound basket of yuca in ten minutes. A neighbor also owns a power grinder and when both are being more fully utilized this should lower the price and perhaps remove one of the few sources of income still open to the Indians.

When younger, Samuel used to work for others but now works only for himself. His two sons, José (24) and Gustavo (21) are still unmarried and also work for him. Much of the work with the yuca is done by his wife and another woman who lives with them. If new clearings are being made or extra labor is needed, he usually hires Indians.

Thus far there is no shortage of land and although Samuel has no legal hold on the land he farms, he is not seriously concerned. Incora (Instituto Colombiano Reforma Agraria) has begun to issue legal title to such "homesteaded" land in some parts of the country and he expects to receive title before many more years have passed.

His major complaint is that the local people prefer to buy products flown in from outside rather than those grown by local farmers. He could easily expand his plantings of rice, maize, and coffee but he has not done so because the market for them is so limited.

After almost half a century of living and working in the Vaupés, Samuel is optimistic about the future of agriculture there. As evidence of this attitude, he was in the process of building a new and larger home with the aid of a government loan to pay much of the cost. Most of this optimism however is based on his belief that the government is going to play a greater role in the promotion and marketing of agricultural products. At this particular time (March, 1970) he anticipated that the Conservative party, which would take control of the presidency after the April elections, would be much more responsive than the Liberals had been. He, and other farmers had previously been promised government aid but none was received. The areas in which he expects help are guidance in farming techniques, the provision of new seeds or varieties of crops, the betterment of transportation facilities, and perhaps the encouraging of new settlers to move in and augment the local demand for his agricultural products.

Based on past developments he may well be overestimating what the government can or will do to promote the welfare of the comisaria. There is however rather general agreement that the collection of rubber cannot be a source of income for more than a few more years, and unless the economy is expanded or encouraged, even greater problems for both farmers and townspeople will result.

NOTES

1 Ken Learned, Personal communication from Mitú, June 7, 1971.

2 Ibid.

3 Hamilton Rice, "The River Uaupes," Geographical Journal, 35 (1910), p. 687.

CHAPTER VII

CONCLUSIONS

The settlement and development of the Amazon Basin has not been of a steady, relentless nature. There have been periods of very rapid development followed by longer periods when settlers either moved in at a much slower rate or when population actually dropped. All early census data is suspect but Table 1 shows that Mitú's growth has not been steady.

Due to the lack of development and industrialization, the only attraction for outsiders has been the exploitation of natural resources. For the Vaupés, thus far, only forest resources have been utilized. Rubber, balata, and rubber again, drew men from outside the area who came with the idea of spending a short time and emerging with a fortune. Few were successful. The history of rubber collection in South America indicates that only a few of the larger traders were able to earn sizable profits - usually at the expense of many workers.

The efforts of the Rubber Development Corporation were successful in luring some entrepenuers to the Vaupés, but even before the end of World War II its operation there was terminated. The impact of the new techniques

introduced was probably of greater importance than any increase in population generated by its activities.

Only since the 1960's, when population increases in other areas became very rapid, has there been any notable growth of population in the Vaupés. On the northern edge of the comisaria, in the vicinity of San Jose del Guaviare, and along the old road from there to Calamar, numerous farmers have settled. This is an area with land communications to population centers and soils are also somewhat more fertile.

The government continues to be a major element in the economy of Mitú. The recent expansion of the Caja Agraria has provided many jobs. While the level of federal spending has fluctuated a great deal, it is still the most dependable source of income. These expenditures have largely been of a "holding nature." They have attempted to avoid a worsening situation but they have not stimulated any growth that would encourage the investment of private capital. The people continue to look to the federal government for the answers to all problems. This includes agricultural extension services and the improvement of markets, the encouragement of tourism, control of prices and inflation, and many other areas.

This great dependence on the central government acts as a drag on the economy in that individuals are constantly

waiting for the government to take action before they commit themselves.

The declining interest in collecting wild rubber has removed one of the principal sources of income from the local economy. The two factors responsible for this have been low prices for raw rubber and higher collection costs, as wages have increased along with the cost of trade goods.

The failure of the residents to follow the many suggestions that they begin planting improved rubber trees, in easily worked groves, has meant that the collection procedure has changed little in the last sixty years and in many cases yields are now less than they were in the past.

Under present conditions no large expansion of agricultural production can be expected. The local market is no large enough to warrant increased production, and high transportation costs preclude any movement of agricultural goods to market areas.

The standard of living continues to improve with better educational and health facilities but the lack of sewerage facilities enable various internal parasites to flourish and spread among the population. Other health problems could also be controlled by the addition of chlorine to the town's water supply. The lack of vegetables and vitamins in the diet could be overcome if there were

means of protecting the growing plants from the ants, but this would mean the introduction of chemicals which they cannot afford to buy.

The government provides medical and dental treatment in the hospital but the lack of X-ray machines and other diagnostic equipment limits its effectiveness. The supply of medicines is also often inadequate. The doctors working in the hospital are interested, dedicated workers but they are restricted in their work by the lack of proper equipment and the number of patients they must treat. The patients' lack of knowledge of modern medicine creates further difficulties. If a medicine does not bring about an immediate cure, they often stop taking it. The medicine is thus wasted, as is the doctor's time in diagnosing him, and the patient is still sick.

With the creation of the colegio, the educational opportunities in Mitú are as good as in most Colombian towns. The teachers are young and lack experience but students who have graduated from the colegio have already been accepted in the National University and are competing successfully there. Outside of town, schooling is restricted to primary levels which concentrate on improving literacy levels.

The lack of reliable, cheap land transportation is the greatest handicap in developing the Vaupés. The more accessible zones along the Guaviare River are already

experiencing more growth than is the Mitú area. While land connections to Mitú have been under consideration for many years there is simply no economic justification for even a simple "penetration road."

The cost of building a road across such terrain would be far more than the economic growth it would generate. As long as there is land available in the llanos and along the margins of the selva, one cannot justify large government expenditures on the basis of opening up land to settlement.

Previous projects have been based largely on the premise of strengthening Colombia's hold on the land or of incorporating the people into the Colombian nation. This may be a valid use of government funds, but there is no demand for land which warrants such expenditures at the present time.

Relations between the various racial and religious groups are much friendlier than they were during past years. The position of the Indian as a laborer predestines him to a lower social and economic status than those who hire him, but rising wages have made salaries more equitable. The influence of government regulations regarding the treatment of Indians has also had some effect. The strongest influence to improve the situation has probably come from the missionaries - both Catholic and protestant - who have increasingly become the champion

of the Indian and have spoken up in his behalf. Racial and ethnic prejudices in any group change very slowly, but changes are occurring and there is less conflict between the racial and religious groups than there was previously.

There does not seem to be any legitimate reason to be enthusiastic about the prospect of growth in Mitú. There are currently more negative than positive aspects to the situation. The town was located near the border for a specific purpose - discouraging Brazilian incursions into Colombian territory - and it has fulfilled that role. There should be a gradual increase in population but it will consist of Indians moving closer to town and blancos who are satisfied to clear land and carry on subsistence agriculture.

Some North American chemical companies have shown interest in various native plants which are said to have potential value as insecticides or as contraceptives. They have not yet been fully tested and analyzed, so to attach any real significance to them would be premature. The future of the area can be considered only in light of the resources now at hand. These are basically rubber and land. The market for rubber is declining and the land is too far removed from the people who desire it.

If rubber plantations had been planted years ago, they could now be supporting the economy. This failure

to look ahead and invest in the future has been costly. Thus the entire area remains dependent on federal aid and subsidies. Such aid is primarily of a supportive, rather than a developmental nature, and the need never diminishes. Unless this policy changes the future of Mitú appears much like the past - a trading post for a large area of the eastern Vaupés with most income being derived from the federal government.

GLOSSARY OF SPANISH TERMS

Balata - Sap from the Manilkara tree. Similar to rubber.

Barbasco - A plant used to poison fish.

Blanco - A cultural, rather than a racial classification, which includes all who do not live as Indians.

Caja Agraria - The federal agency in charge of promoting agriculture. It buys all rubber and also sells supplies. Also called Caja.

Cauchero - One who collects rubber or hires others to collect it.

Corregidor - Administrative officer of a small town.

Colegio - A secondary school.

Comisaria - The lowest ranking political division of Colombia.

Comisariato - A retail store run by the comisaria.

Comisário - Administrative head of the comisaria.

Empresario - One who hires workers to collect rubber.

Fariña - The toasted flour made from bitter yuca.

Intendencia - A political division of Colombia. The next order above the comisaria.

Internado - A boarding school near Mitú run by the Catholic missionaries.

Maloca - The traditional Indian communal house. Now disappearing.

Seringuero - Same as empresario. One who hires workers to collect rubber.

Territorios Nacionales - The less developed areas of Colombia.

Trocha - The trail cut from one rubber tree to the next to aid collection.

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I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

Raymond E. Crist
Research Professor of Geography

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

David L. Rhodes
Professor of Geography

I certify that I have read this study and that in mt opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

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